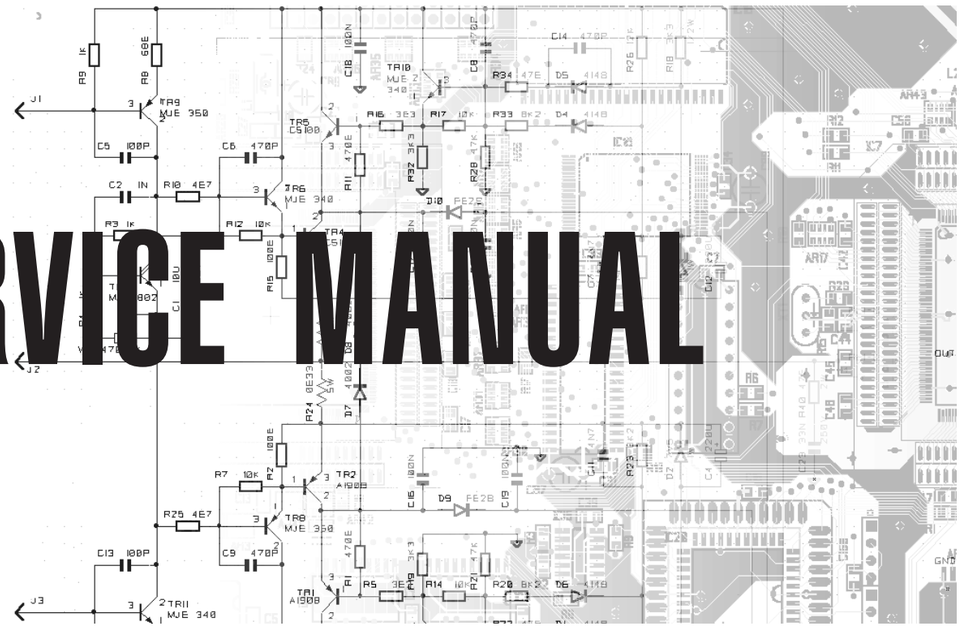
# SK760 WORLD KEYBOARD

# SK880 WORLD KEYBOARD

# SERVICE MANUAL

FOURTH EDITION APRIL 2000



GENERALMUSIC®

CODE: 270216

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NOTE: The SK series is manufctured in two versions:
The TRF version has a traditional supply (transformer and power supply board with mixer).
The SWT version has a switching supply (switching unit and mixer board).
All the specifications remain the same, unless the mains voltage:
The TRF version has two nominal mains voltages 115Vac-60Hz for U.S.A. or 230Vac-50Hz for CEE & other countries.
The SWT version accept all mains voltages into the range of 100-230Vac and 50-60Hz.

## Warnings

### Notice

Service must be carried out by qualified personnel only.Any tampering carried out by unqualified personnel during the guarantee period will forfeit the right to guarantee.
For a correct operation of the instrument, after having switched off, be careful to wait at least 3 seconds before switching on again.
To improve the device's specifications, the schematic diagrams may be subject to change without prior notice.
All components marked by this symbol have special safety characteristics, when replacing any of these components use only manufacturer's specified parts.
The ($\mu$) micro symbol of capacitance value is substituted by U.
The ($\Omega$) omega symbol of resistance value is substituted by E.
The electrolytic capacitors are 25Vdc rated voltage unless otherwise specified.
All resistors are 1/8$\Omega$ unless otherwise specified.
All switches shown in the "OFF" position. All DC voltages measured to ground with a voltmeter 20KOhm/V.

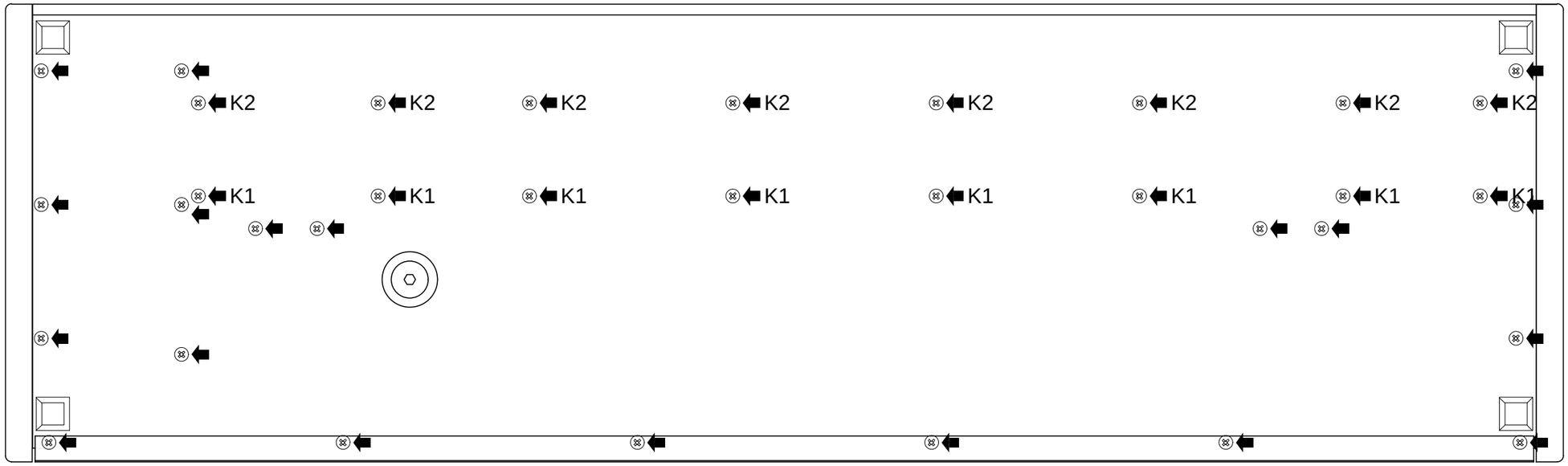
- ← Soldering point.
- • Male connector.
- ⊃ Female connector.
- ⟜ M/F faston connector.
- ↑ Supply voltage.
- ⊡ Test point.
- ⟨ Flag joined with one or more flags with the same signal name inscribed.
- ⏚ Logic supply ground.
- ⏚ Analog supply ground.
- ⏚ Chassis ground.
- ⏚ Earth ground.

### ATTENTION

Observe precautions when handling electrostatic sensitive devices.

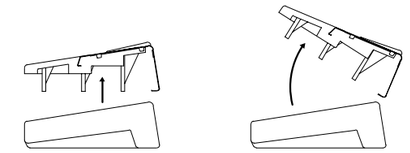
## Address


GENERALMUSIC S.p.A. Sales Division: 47842 S.Giovanni in Marignano (RN) ITALY - Via delle Rose, 12 - tel. 0541/959511 - fax 0541/957404
GENERALMUSIC on the NET: http://www.generalmusic.com




## Opening Instructions

Disconnect the instrument from the mains.
Carefully turn the instrument over and unscrew the screws marked with the arrows.
Hold the chassis (top & bottom) tightly and turn the istrument the right way up, lift off the top chassis as shown below with care without forcing or disconnecting the cables.

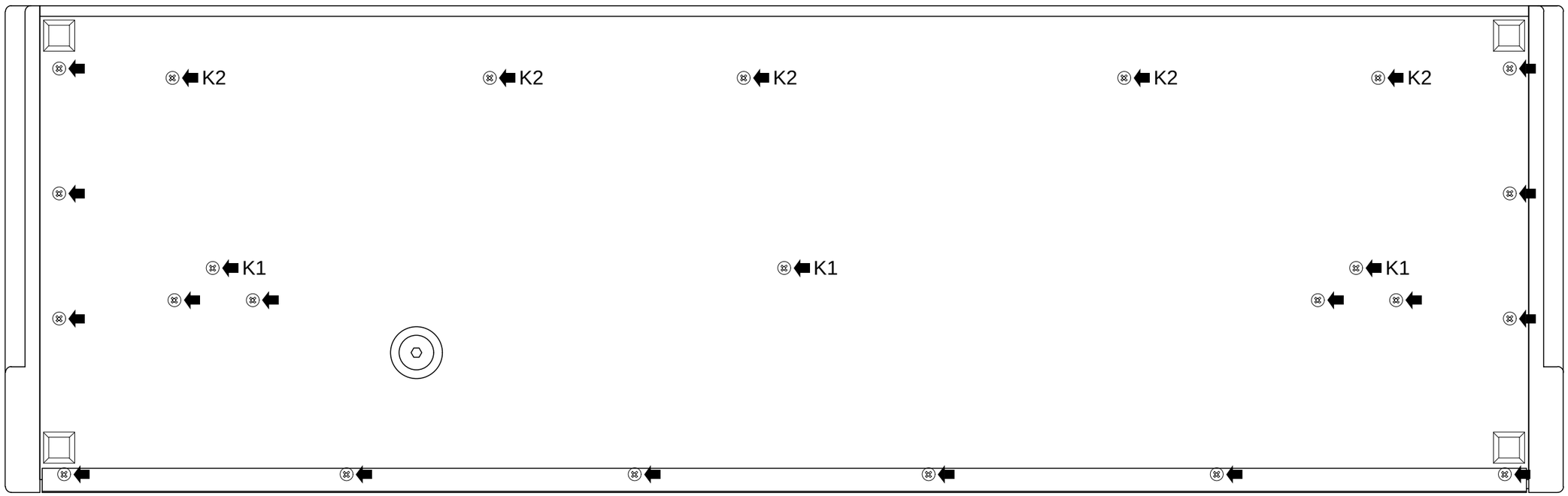


## Keyboard Separation

(open the instrument before proceed)
To separate the keyboard from chassis, carefully turn the bottom chassis from horizontal to vertical, remove the screws marked by K1 , put it back horizontal, holding top & bottom chassis move these tightly to the end of your job table, now unscrew the screws marked with K2 to reassemble the keyboard & the chassis follow the instructions in reverse order.

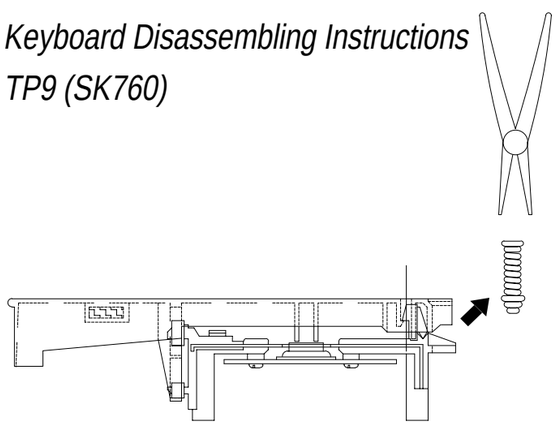
*SK760*

*SK880*

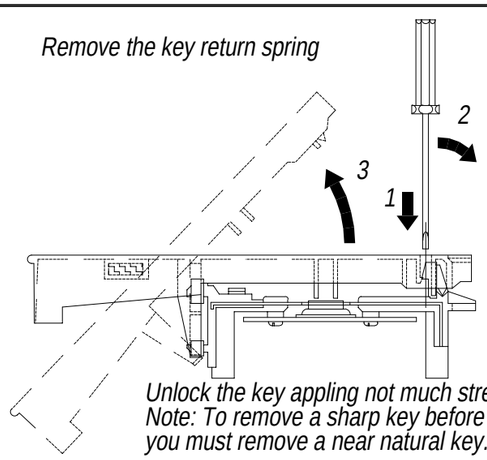



## *Keyboard Disassembling Instructions*

### *TP9 (SK760)*

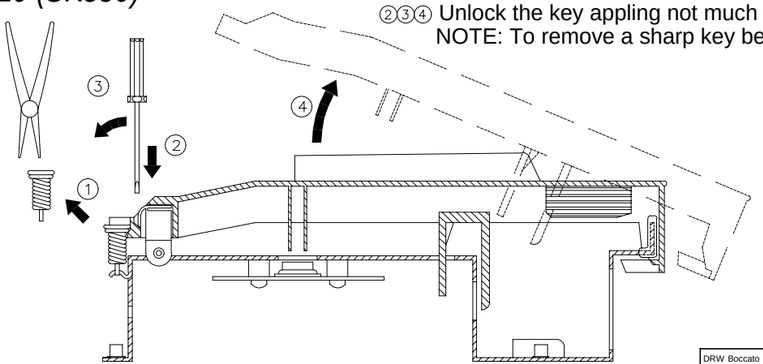


*Remove the key return spring*



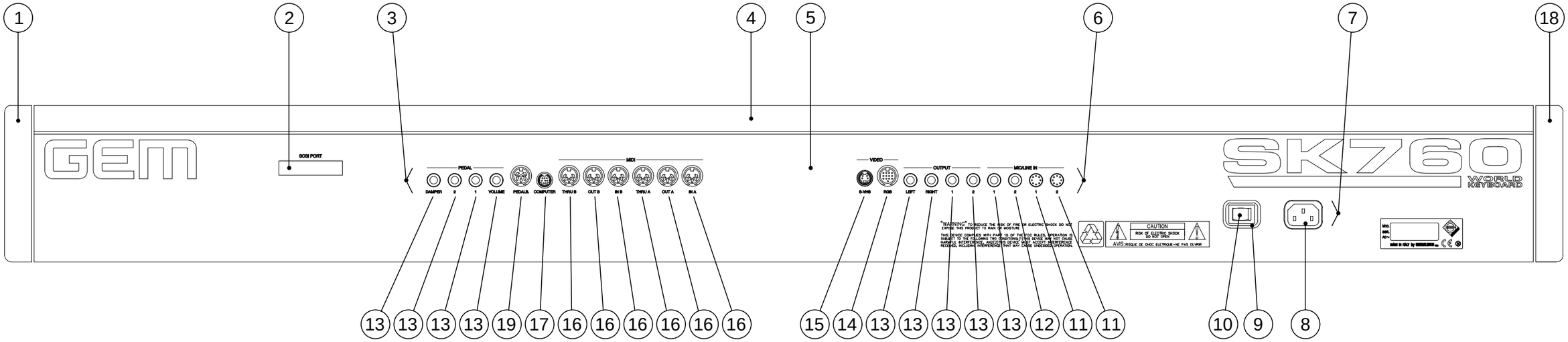

*Unlock the key appling not much strenght*
*Note: To remove a sharp key before you must remove a near natural key.*

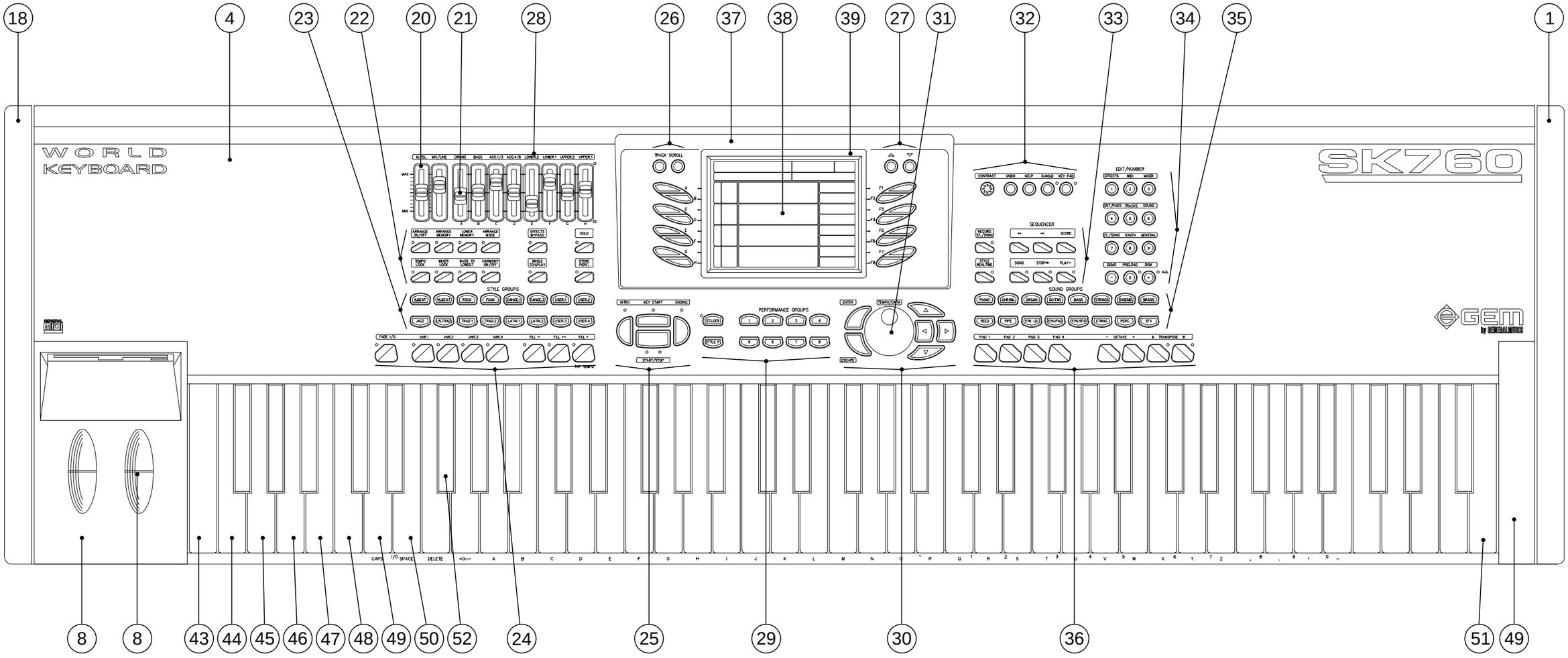
### *TP10 (SK880)*




① Remove the key return spring.
②③④ Unlock the key appling not much strength
NOTE: To remove a sharp key before you must remove the near natural keys.

| | | | |
|---|---|---|---|
| DRW Boccato | DWG# 550168 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD Riccobelli | DISK: 5 PRT: 1/1 | Opening Instructions<br>Keyboard Disassembling Instructions | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. Pannelli | REV: 30/01/99 | | |

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|---|---|---|---|
| DRW Boccato | DWG# 550169 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD Riccobelli | DISK: 5 PRT: 1/1 | SK760 Layout<br>for descriptions see the REF column<br>on Spare Part List further on this manual. | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
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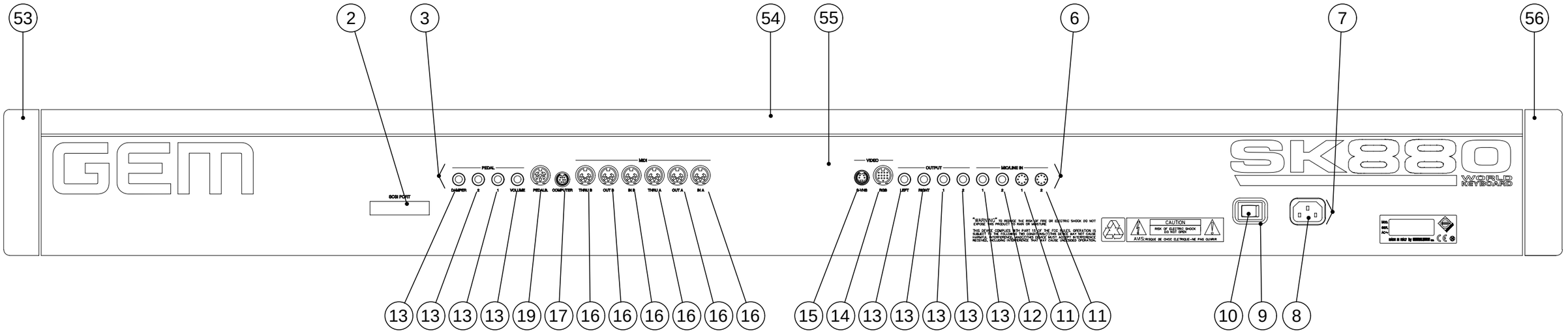


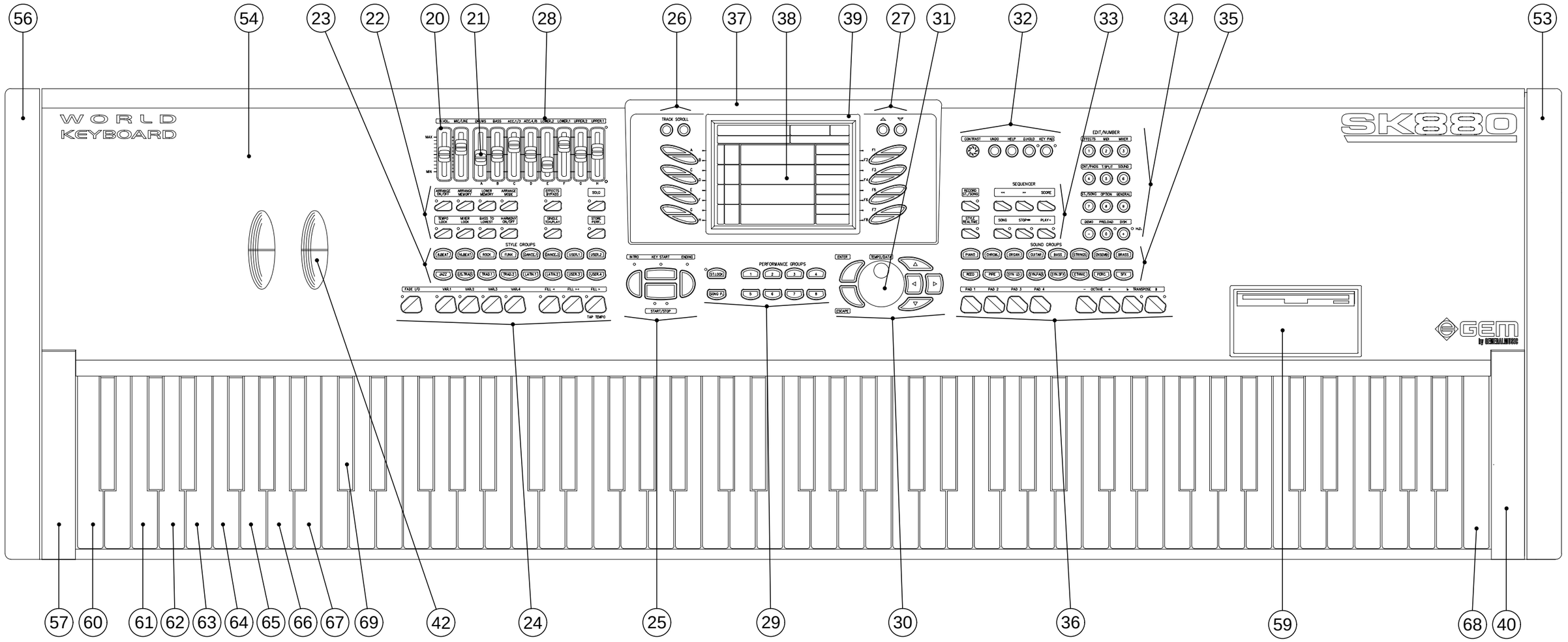


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|---|---|---|---|
| DRW Boccato | DWG# 550170 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD Riccobelli | DISK: 5 PRT: 1/1 | SK880 Layout for descriptions see the REF column on Spare Part List further on this manual. | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
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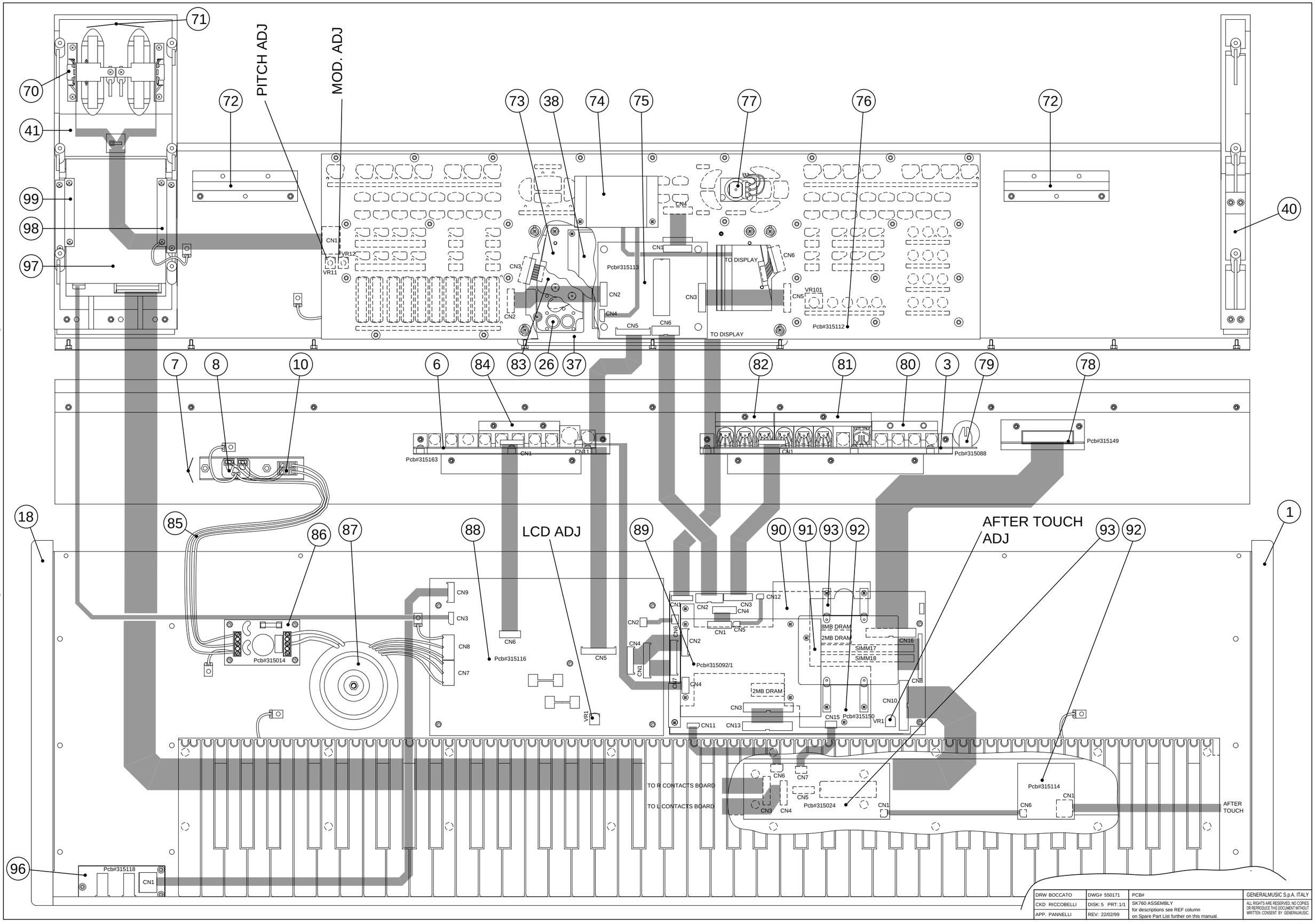
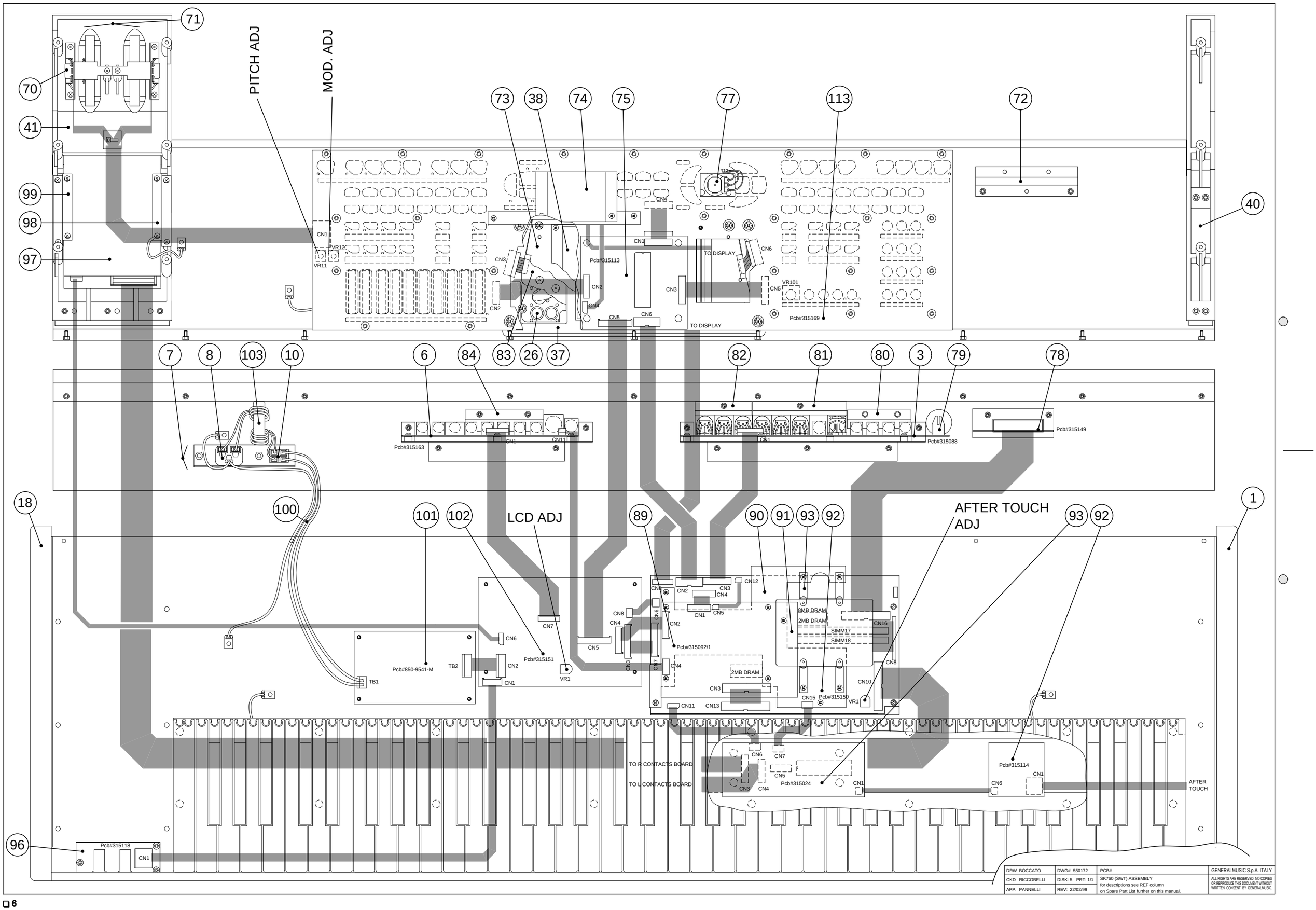



| | | | |
|---|---|---|---|
| DRW BOCCATO | DWG# 550171 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DISK: 5 PRT: 1/1 | SK760 ASSEMBLY<br>for descriptions see REF column<br>on Spare Part List further on this manual. | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. PANNELLI | REV: 22/02/99 | | |




| | | | |
|---|---|---|---|
| DRW BOCCATO | DWG# 550172 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DISK: 5 PRT: 1/1 | SK760 (SWT) ASSEMBLY<br>for descriptions see REF column<br>on Spare Part List further on this manual. | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
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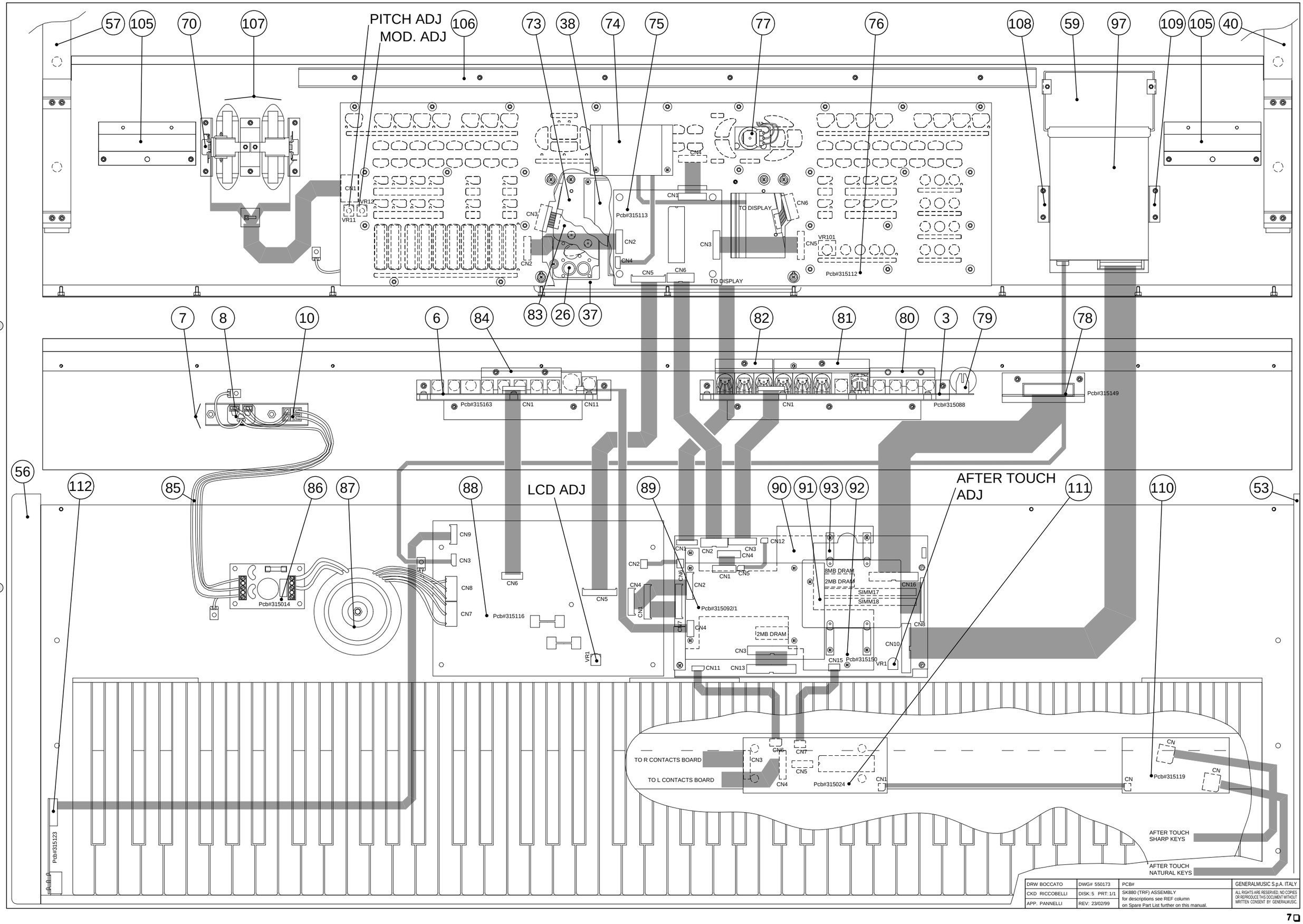


| | | | |
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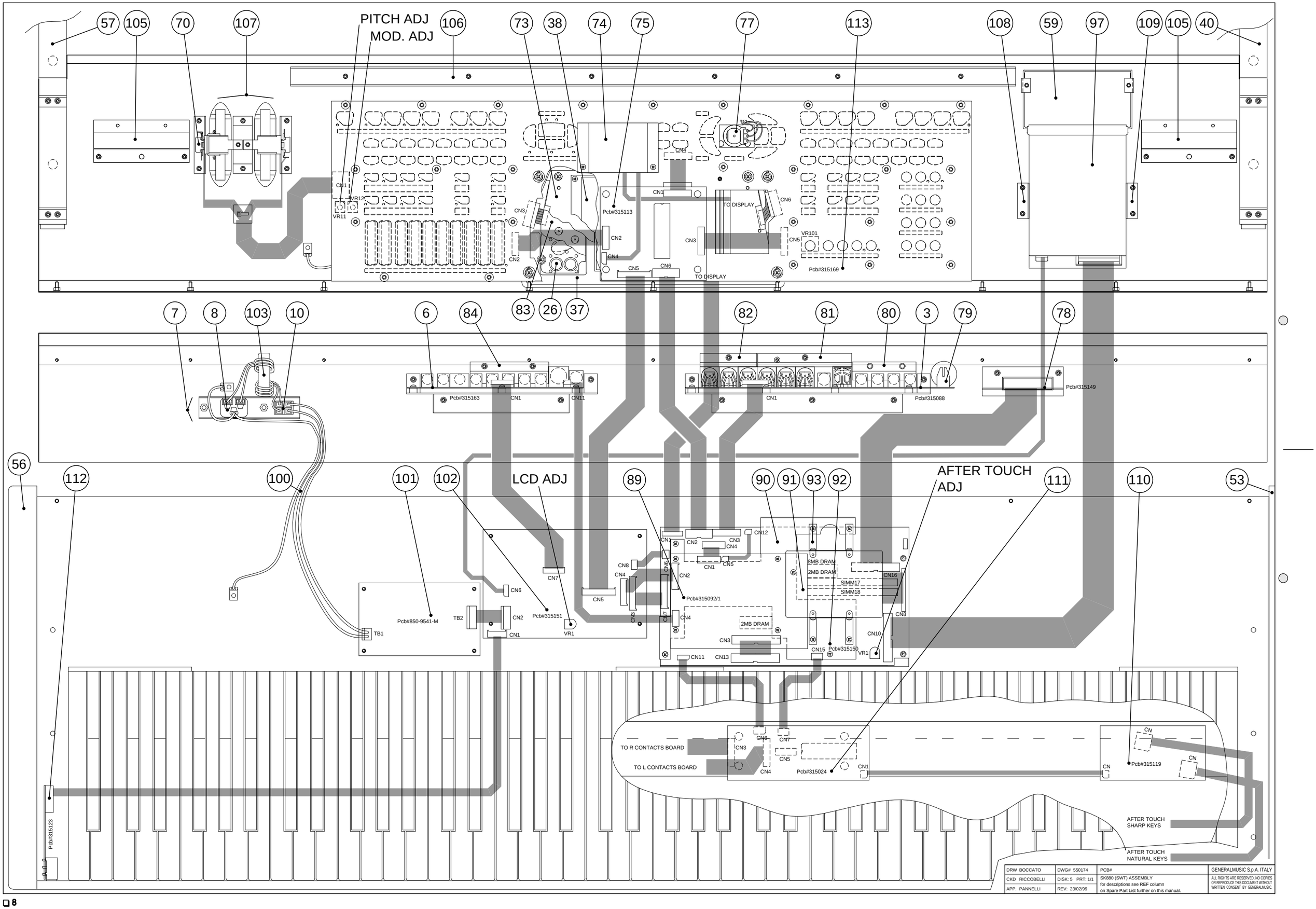
| CKD RICCOBELLI | DISK: 5 PRT: 1/1 | SK880 (TRF) ASSEMBLY<br>for descriptions see REF column<br>on Spare Part List further on this manual. | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. PANNELLI | REV: 23/02/99 | | |




| | | | |
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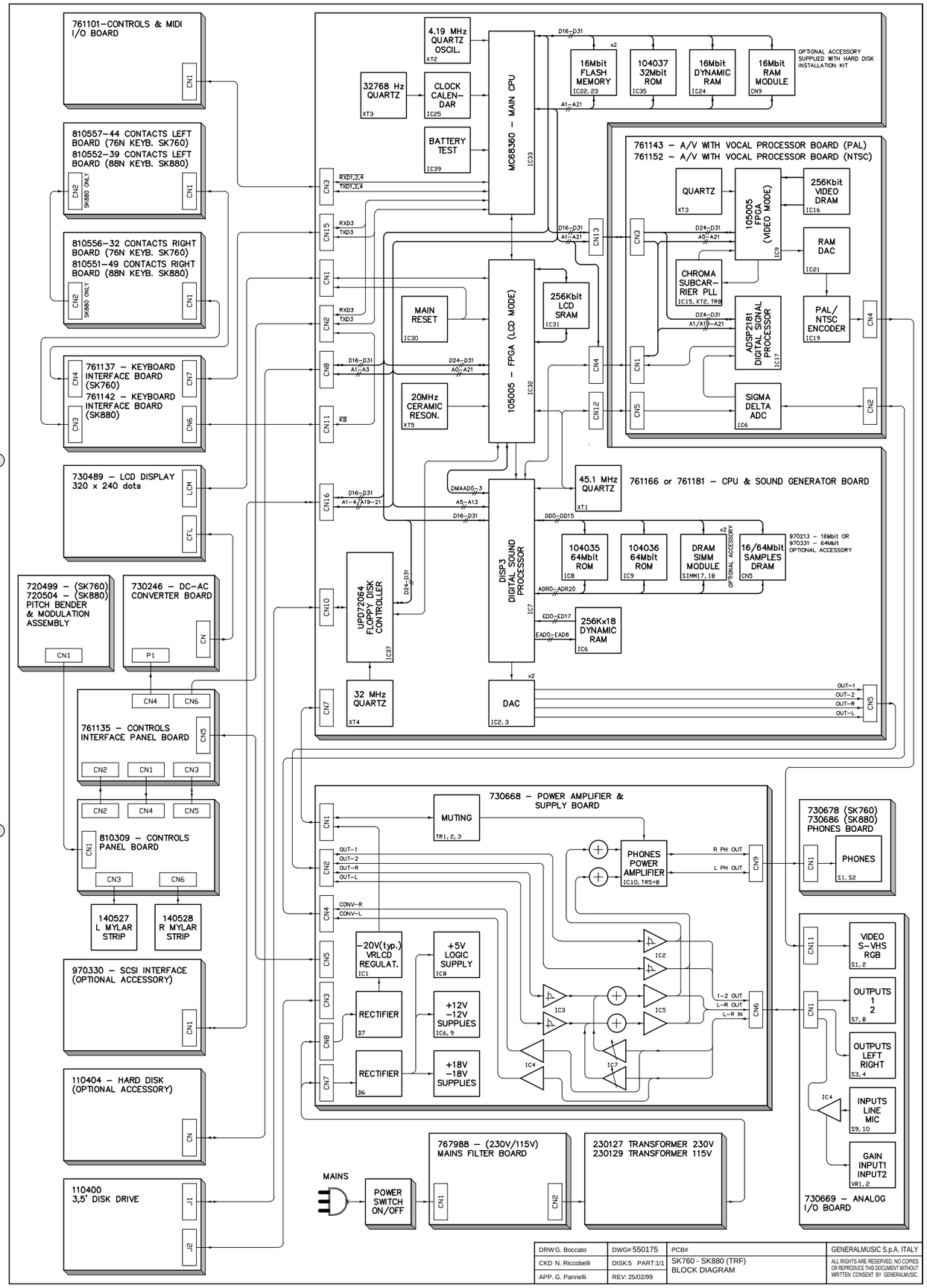
| DRW BOCCATO | DWG# 550174 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DISK: 5 PRT: 1/1 | SK880 (SWT) ASSEMBLY<br>for descriptions see REF column<br>on Spare Part List further on this manual. | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. PANNELLI | REV: 23/02/99 | | |


761101–CONTROLS & MIDI I/O BOARD
810557–44 CONTACTS LEFT BOARD (76N KEYB. SK760)
810552–39 CONTACTS LEFT BOARD (88N KEYB. SK880)
SK880 ONLY
810556–32 CONTACTS RIGHT BOARD (76N KEYB. SK760)
810551–49 CONTACTS RIGHT BOARD (88N KEYB. SK880)
761137 – KEYBOARD INTERFACE BOARD (SK760)
761142 – KEYBOARD INTERFACE BOARD (SK880)
730489 – LCD DISPLAY 320 x 240 dots
720499 – (SK760) 720504 – (SK880) PITCH BENDER & MODULATION ASSEMBLY
730246 – DC–AC CONVERTER BOARD
761135 – CONTROLS INTERFACE PANEL BOARD
810309 – CONTROLS PANEL BOARD
140527 L MYLAR STRIP
140528 R MYLAR STRIP
970330 – SCSI INTERFACE (OPTIONAL ACCESSORY)
110404 – HARD DISK (OPTIONAL ACCESSORY)
110400 3,5' DISK DRIVE
4.19 MHz QUARTZ OSCIL.
32768 Hz QUARTZ
CLOCK CALEN–DAR
BATTERY TEST
MC68360 – MAIN CPU
16Mbit FLASH MEMORY
104037 32Mbit ROM
16Mbit DYNAMIC RAM
16Mbit RAM MODULE
OPTIONAL ACCESSORY SUPPLIED WITH HARD DISK INSTALLATION KIT
761143 – A/V WITH VOCAL PROCESSOR BOARD (PAL)
761152 – A/V WITH VOCAL PROCESSOR BOARD (NTSC)
QUARTZ
105005 FPGA (VIDEO MODE)
256Kbit VIDEO DRAM
RAM DAC
CHROMA SUBCAR–RIER PLL
ADSP2181 DIGITAL SIGNAL PROCESSOR
PAL/ NTSC ENCODER
SIGMA DELTA ADC
MAIN RESET
256Kbit LCD SRAM
20MHz CERAMIC RESON.
105005 – FPGA (LCD MODE)
761166 or 761181 – CPU & SOUND GENERATOR BOARD
45.1 MHz QUARTZ
DISP3 DIGITAL SOUND PROCESSOR
104035 64Mbit ROM
104036 64Mbit ROM
DRAM SIMM MODULE
16/64Mbit SAMPLES DRAM
970213 – 16Mbit OR 970331 – 64Mbit OPTIONAL ACCESSORY
UPD72064 FLOPPY DISK CONTROLLER
256Kx18 DYNAMIC RAM
32 MHz QUARTZ
DAC
730668 – POWER AMPLIFIER & SUPPLY BOARD
MUTING
PHONES POWER AMPLIFIER
730678 (SK760) 730686 (SK880) PHONES BOARD
PHONES
–20V(typ.) VRLCD REGULAT.
+5V LOGIC SUPPLY
+12V –12V SUPPLIES
+18V –18V SUPPLIES
RECTIFIER
767988 – (230V/115V) MAINS FILTER BOARD
230127 TRANSFORMER 230V
230129 TRANSFORMER 115V
MAINS
POWER SWITCH ON/OFF
730669 – ANALOG I/O BOARD
VIDEO S–VHS RGB
OUTPUTS 1 2
OUTPUTS LEFT RIGHT
INPUTS LINE MIC
GAIN INPUT1 INPUT2

| | | | |
|---|---|---|---|
| DRW G. Boccato | DWG# 550175 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD N. Riccobelli | DISK.5 PART:1/1 | SK760 - SK880 (TRF) BLOCK DIAGRAM | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
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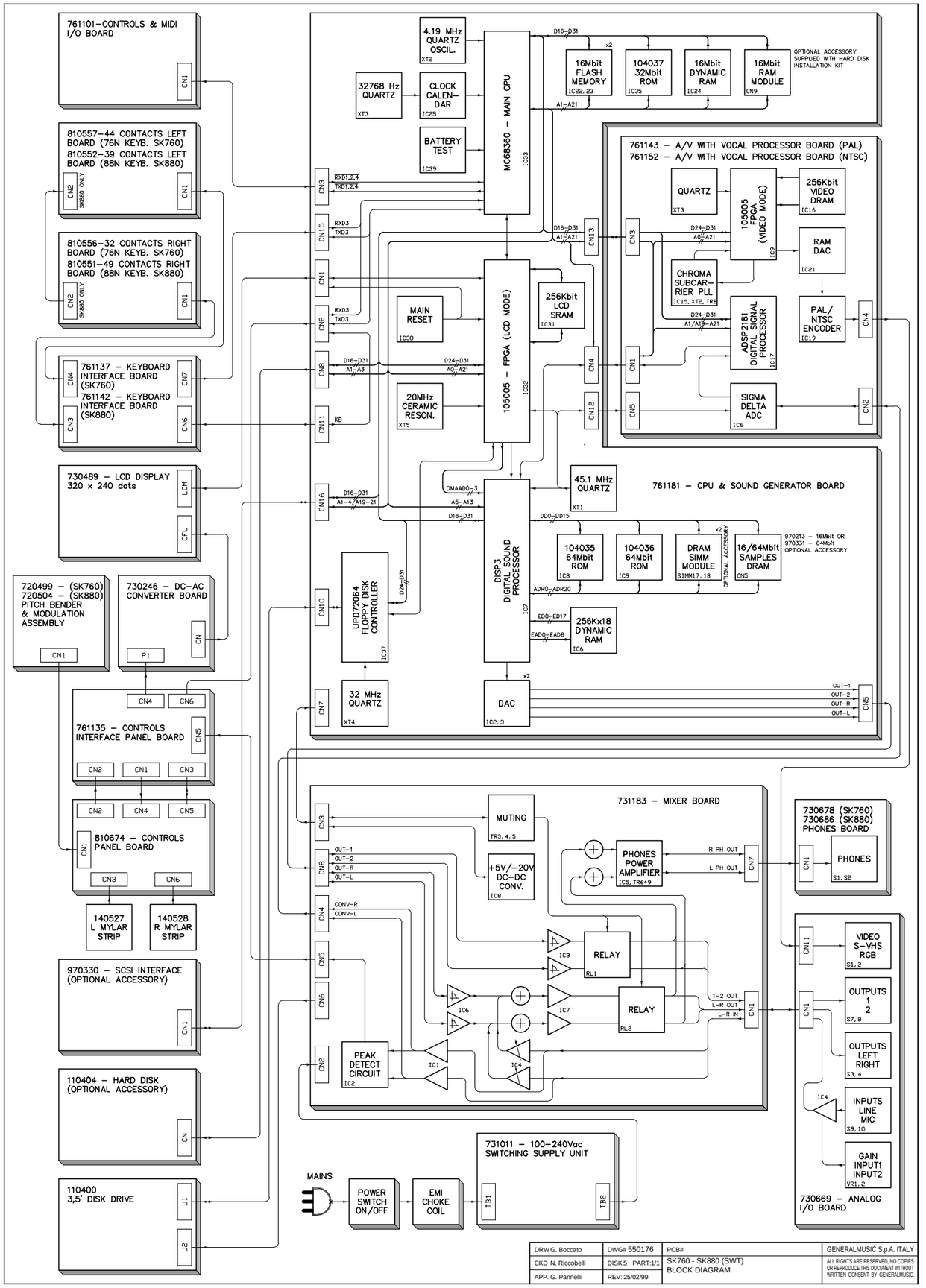
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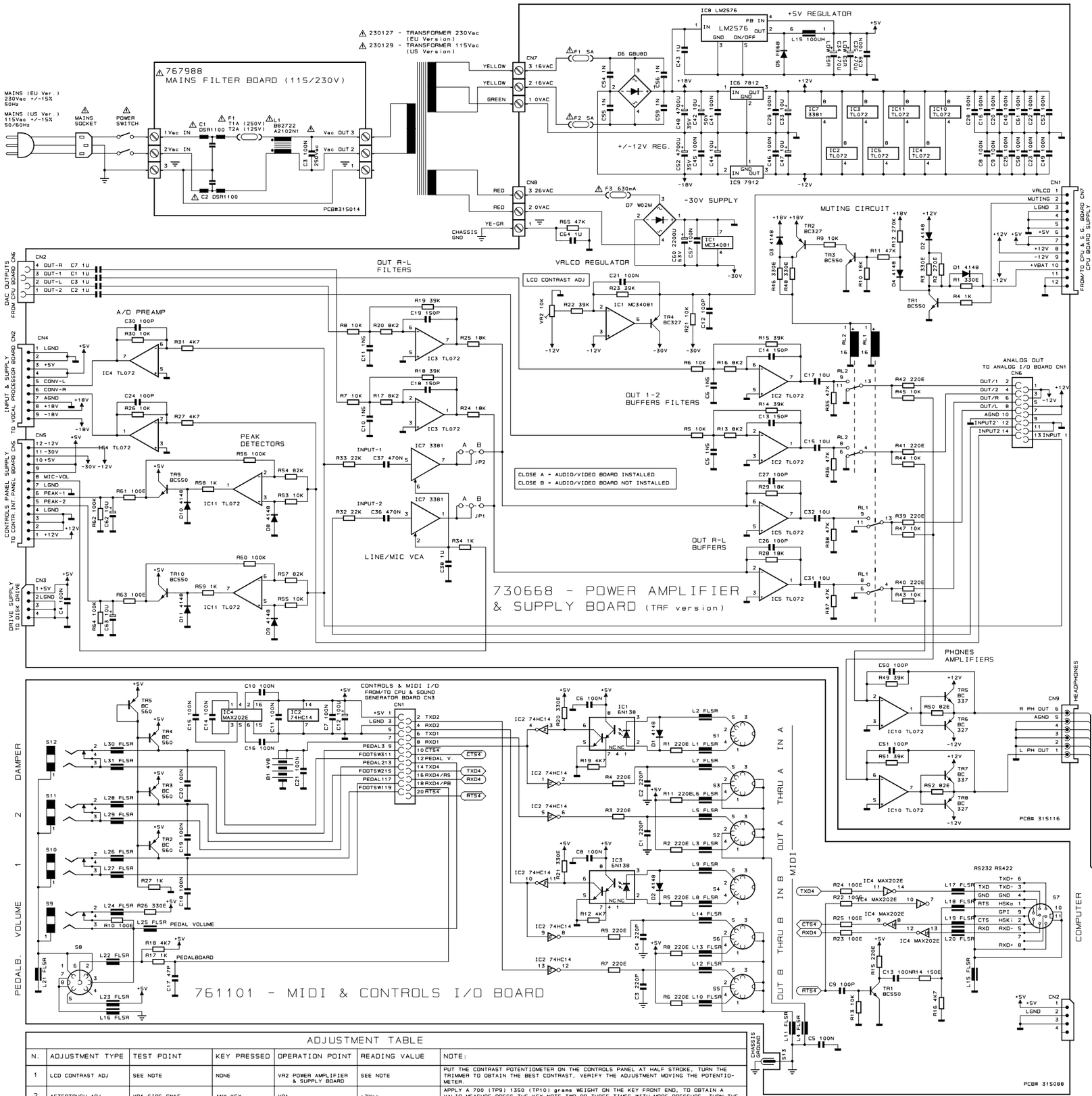
UPD72064 FLOPPY DISK CONTROLLER
256Kx18 DYNAMIC RAM
32 MHz QUARTZ
DAC
731183 – MIXER BOARD
MUTING
+5V/–20V DC–DC CONV.
PHONES POWER AMPLIFIER
730678 (SK760) 730686 (SK880) PHONES BOARD
PHONES
RELAY
PEAK DETECT CIRCUIT
731011 – 100–240Vac SWITCHING SUPPLY UNIT
MAINS
POWER SWITCH ON/OFF
EMI CHOKE COIL
730669 – ANALOG I/O BOARD
VIDEO S–VHS RGB
OUTPUTS 1 2
OUTPUTS LEFT RIGHT
INPUTS LINE MIC
GAIN INPUT1 INPUT2

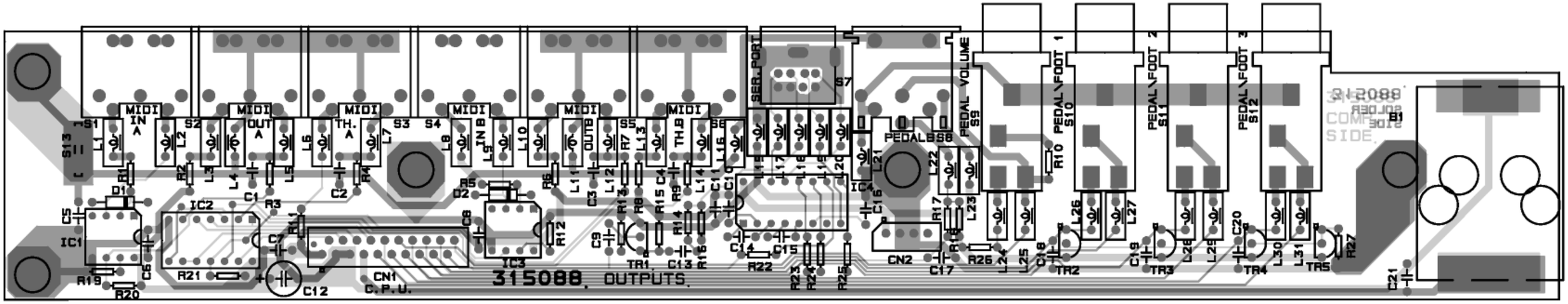
| | | | |
|---|---|---|---|
| DRW G. Boccato | DWG# 550176 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD N. Riccobelli | DISK.5 PART:1/1 | SK760 - SK880 (SWT) BLOCK DIAGRAM | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. G. Pannelli | REV: 25/02/99 | | |



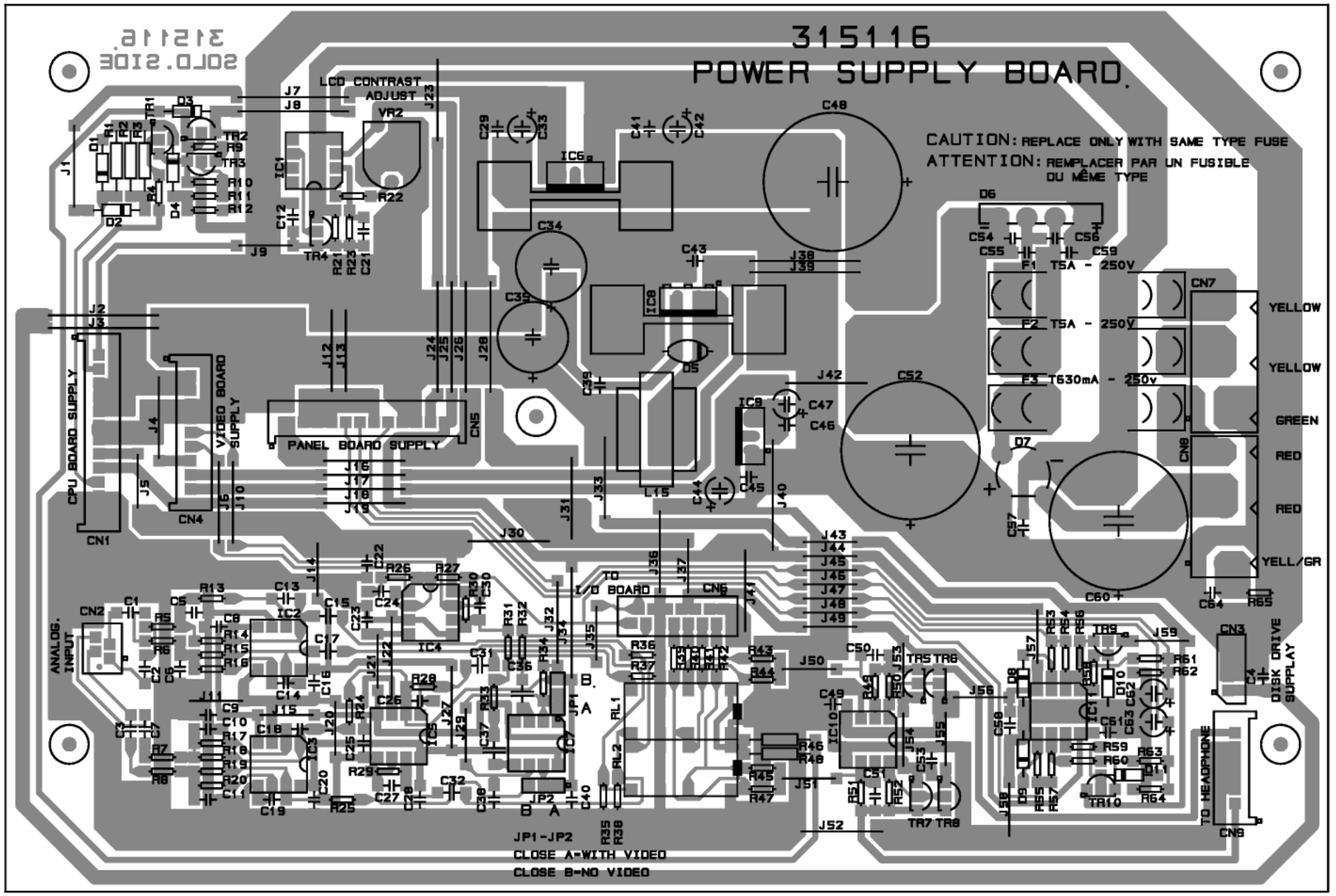

## ADJUSTMENT TABLE

| N. | ADJUSTMENT TYPE | TEST POINT | KEY PRESSED | OPERATION POINT | READING VALUE | NOTE: |
|---|---|---|---|---|---|---|
| 1 | LCD CONTRAST ADJ | SEE NOTE | NONE | VR2 POWER AMPLIFIER & SUPPLY BOARD | SEE NOTE | PUT THE CONTRAST POTENTIOMETER ON THE CONTROLS PANEL AT HALF STROKE, TURN THE TRIMMER TO OBTAIN THE BEST CONTRAST, VERIFY THE ADJUSTMENT MOVING THE POTENTIOMETER. |
| 2 | AFTERTOUCH ADJ | VR1 SIDE CN15 | ANY KEY | VR1 | ~2Vcc | APPLY A 700 (TP9) 1350 (TP10) grams WEIGHT ON THE KEY FRONT END, TO OBTAIN A VALID MEASURE PRESS THE KEY NOTE TWO OR THREE TIMES WITH MORE PRESSURE, TURN THE TRIMMER TO HAVE THE VALUE SPECIFIED. |
| 3 | PITCH CENTRE ADJ | R1 SIDE C1 CONTROLS PANEL BOARD | WHEEL AT CENTRE | VR11 CONTROLS PANEL BOARD | 2.5Vcc | SET THE OSCILLOSCOPE ON D.C. AT 1V/div. 1mS/div. VERIFY THAT THE VOLTAGE VALUE SWING FROM 0 TO 5V WHEN YOU ROTATE THE WHEEL FROM MINIMUM TO MAXIMUM POSITION. |
| 4 | MODULATION CENTRE ADJ | R8 SIDE C6 CONTROLS PANEL BOARD | WHEEL AT CENTRE | VR12 CONTROLS PANEL BOARD | 2.5Vcc | SET THE OSCILLOSCOPE ON D.C. AT 1V/div. 1mS/div. VERIFY THAT THE VOLTAGE VALUE SWING FROM 0 TO 5V WHEN YOU ROTATE THE WHEEL FROM MINIMUM TO MAXIMUM POSITION. |

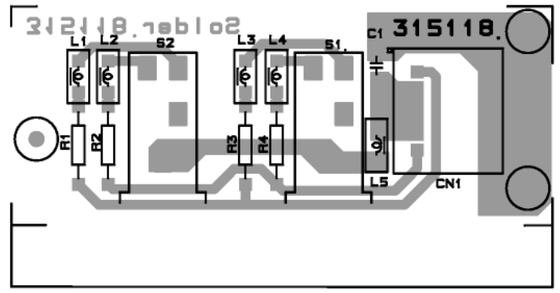
| | | | |
|---|---|---|---|
| DRW BOCCATO | DWG# 550177 | PCB# 315014/315116/315117/315088/315118/315123 | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DSK# 5 PART:1/1 | SCHEMATIC DIAGRAM | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. PANNELLI | REV: 26-02-99 | POWER AMP. & SUPPLY, PHONES, MIDI CONTROLS, ANALOG I/O BOARDS | |



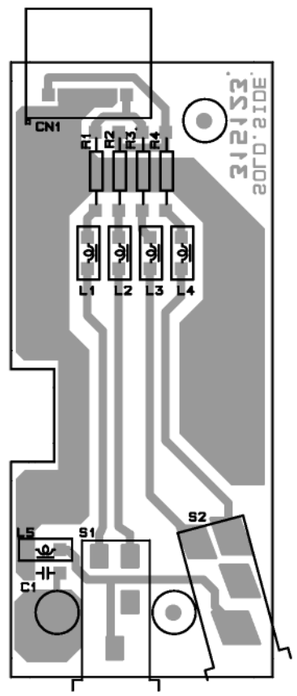

CONTROLS & MIDI I/O BOARD (PCB# 315088)




POWER SUPPLY BOARD (PCB# 315116) TRF version

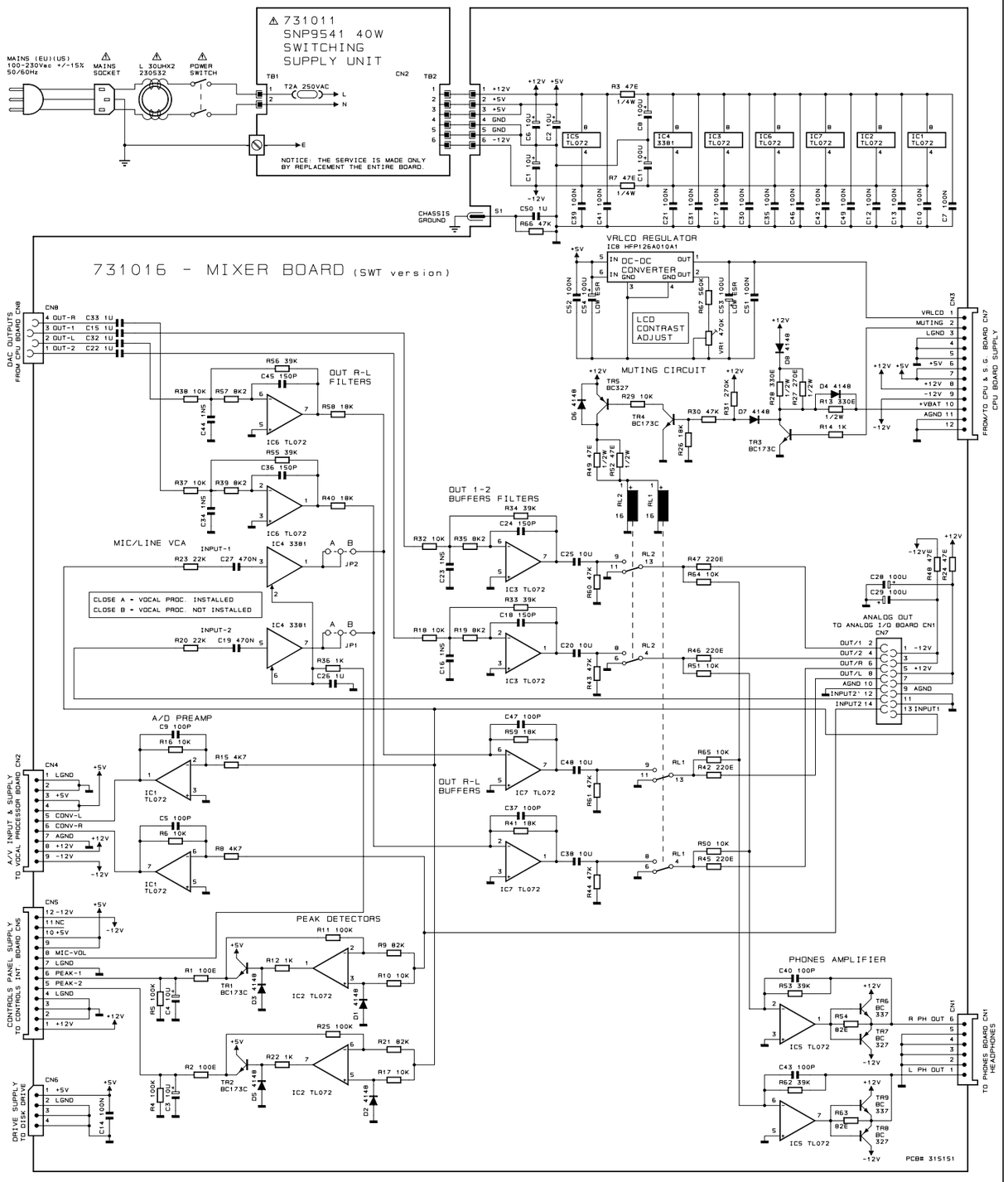



PHONES BOARD (PCB# 315118)



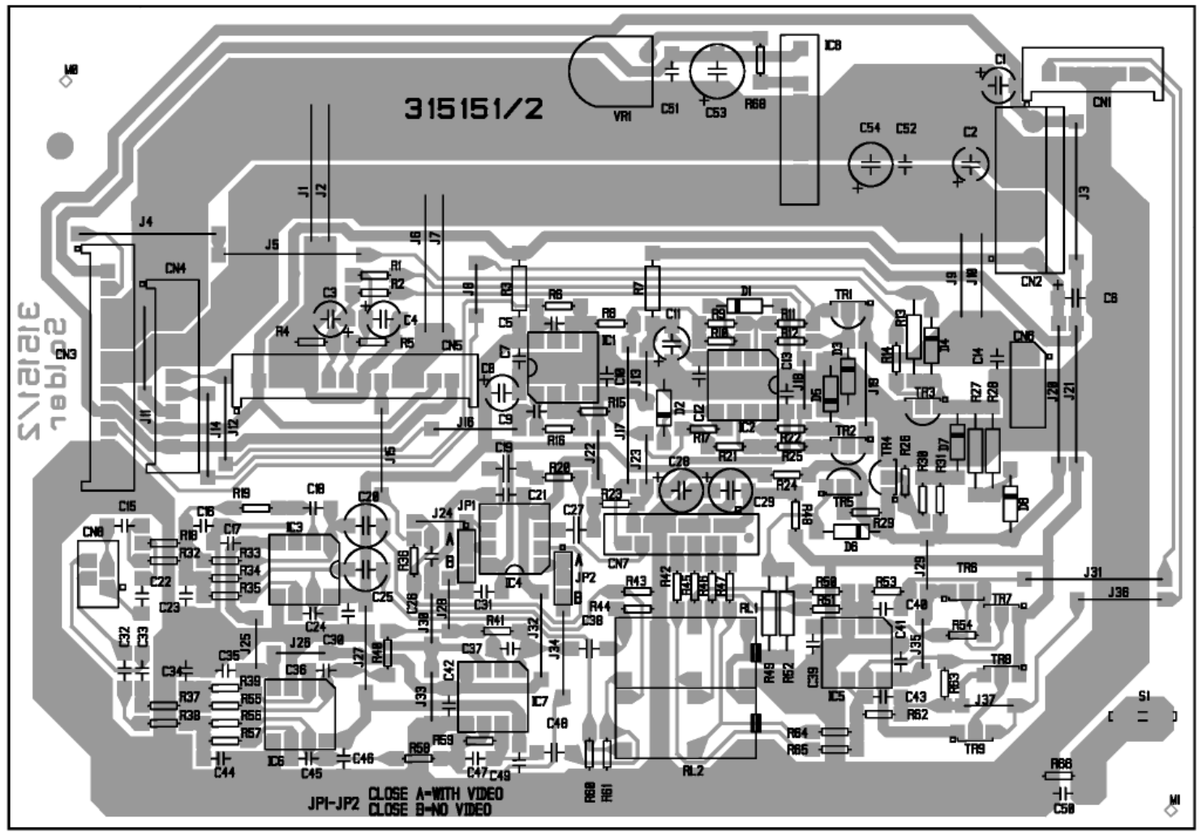

PHONES BOARD (PCB# 315123)

| | | | |
|---|---|---|---|
| DRW: BOCCATO | DWG: 315088/315116 315118 / 315123 | SCHEMATIC DIAGRAM SK760/880 | GENERALMUSIC S.p.A. Italy |
| CKD: RICCOBELLI | DISK: 5 PART: 1/1 | Power Supply (TRF), Phones and Controls & MIDI I/O Board Pcb Layouts | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP: PANNELLI | REV: 25-02-99 | | |

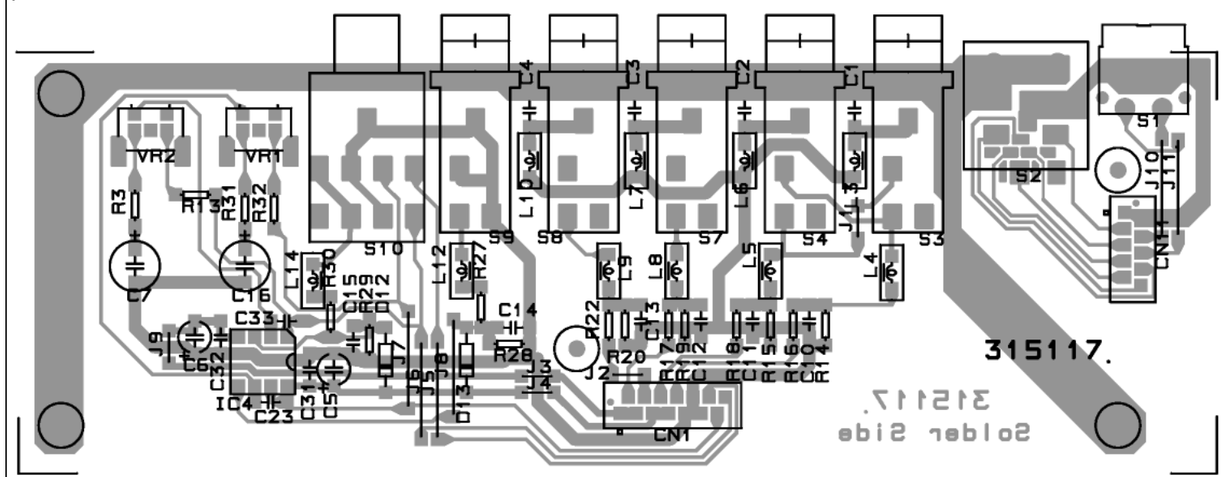



| ADJUSTMENT TABLE | | | | | | |
|---|---|---|---|---|---|---|
| N. | ADJUSTMENT TYPE | TEST POINT | KEY PRESSED | OPERATION POINT | READING VALUE | NOTE: |
| 1 | LCD CONTRAST ADJ | SEE NOTE | NONE | VR1 MIXER BOARD | SEE NOTE | PUT THE CONTRAST POTENTIOMETER ON THE CONTROLS PANEL AT HALF STROKE, TURN THE TRIMMER TO OBTAIN THE BEST CONTRAST, VERIFY THE ADJUSTMENT MOVING THE POTENTIOMETER. |
| 2 | AFTERTOUCH ADJ | VR1 SIDE CN1S | ANY KEY | VR1 | ~2Vcc | APPLY A 700 (TP9) 1350 (TP10) grams WEIGHT ON THE KEY FRONT END, TO OBTAIN A VALID MEASURE PRESS THE KEY NOTE TWO OR THREE TIMES WITH MORE PRESSURE, TURN THE TRIMMER TO HAVE THE VALUE SPECIFIED. |
| 3 | PITCH CENTRE ADJ | R1 SIDE C1 CONTROLS PANEL BOARD | WHEEL AT CENTRE | VR11 CONTROLS PANEL BOARD | 2.5Vcc | SET THE OSCILLOSCOPE ON D.C. AT 1V/div. 1mS/div. VERIFY THAT THE VOLTAGE VALUE SWING FROM 0 TO 5V WHEN YOU ROTATE THE WHEEL FROM MINIMUM TO MAXIMUM POSITION. |
| 4 | MODULATION CENTRE ADJ | R8 SIDE C6 CONTROLS PANEL BOARD | WHEEL AT CENTRE | VR12 CONTROLS PANEL BOARD | 2.5Vcc | SET THE OSCILLOSCOPE ON D.C. AT 1V/div. 1mS/div. VERIFY THAT THE VOLTAGE VALUE SWING FROM 0 TO 5V WHEN YOU ROTATE THE WHEEL FROM MINIMUM TO MAXIMUM POSITION. |

| | | | | |
|---|---|---|---|---|
| DRW BOCCATO | DWG# 550178 | PCB# 315151 | | MUSIC MEDIA SOFT s.r.l. |
| DEPT.RICCOBELLI | DATE 5 1/1 | DESCRIPTION MIXER BOARD | SK760-880 (SWT) | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY MMS s.r.l. |
| PART#PANNELLI | REV# 24-02-99 | | | |



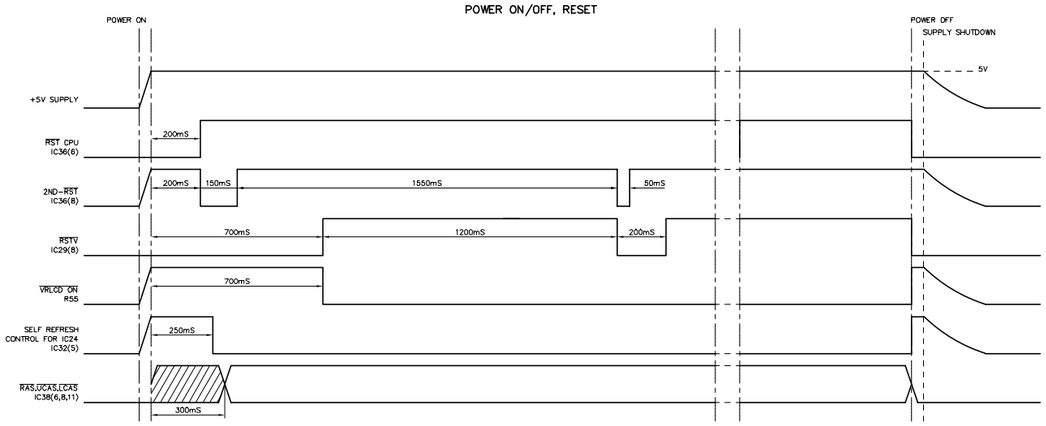

**MIXER BOARD (PCB# 315151-2) SWT version.**



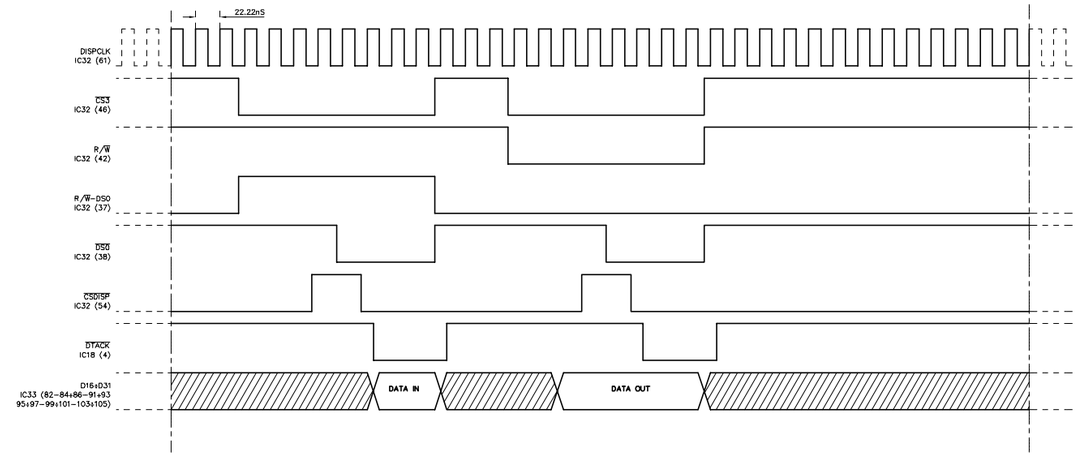

**ANALOG I/O BOARD (PCB# 315117).**

| | | | |
|---|---|---|---|
| DRW: BOCCATO | DWG: 315151/315117 | SCHEMATIC DIAGRAM SK760/880 | GENERALMUSIC S.p.A. Italy |
| CKD: RICCOBELLI | DISK: 5 PART: 1/1 | Mixer Board and Analog I/O Board Pcb Layouts | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP: PANNELLI | REV: 25-02-99 | | |

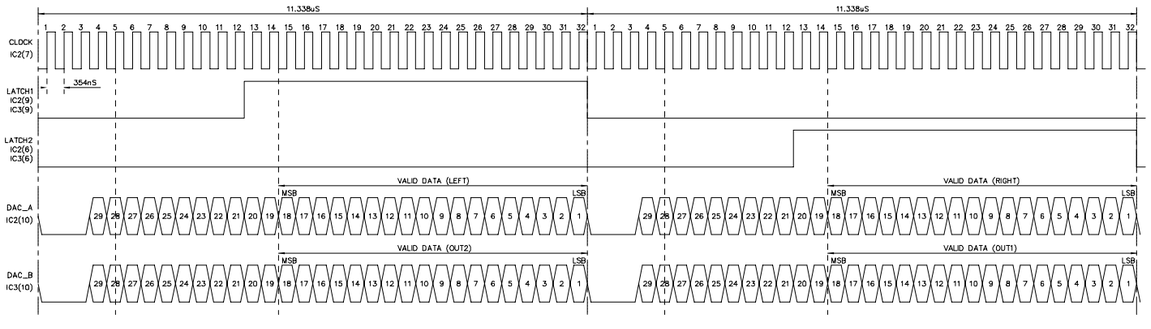
## POWER ON/OFF, RESET




## DISP 3 TIMING

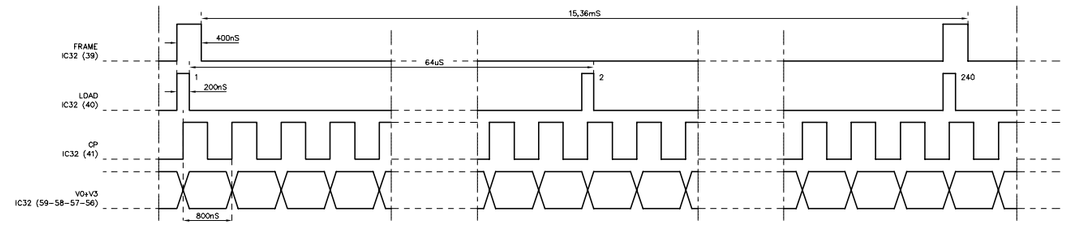



## PCM SERIAL DATA BUS

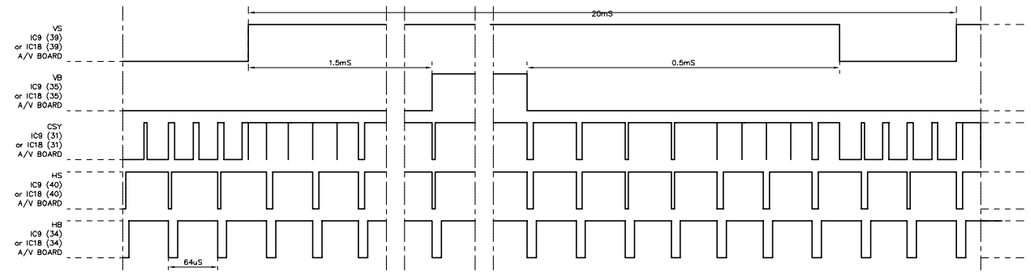



NOTE: ALL COMPONETS PIN REFERENCE ARE LOCATED ON "CPU & SOUND GENERATOR BOARD" UNLESS OTHERWISE SPECIFIED.

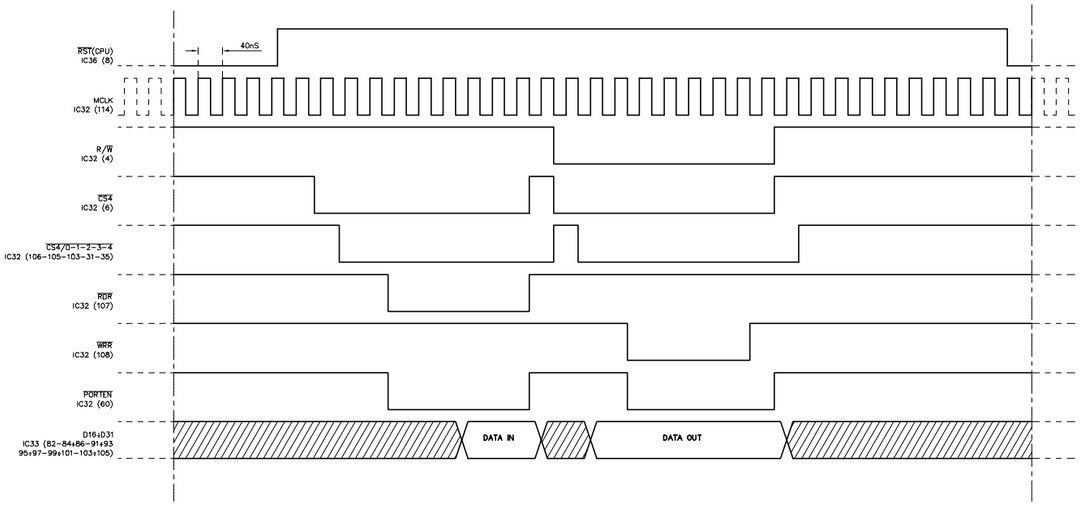
## LCD TIMING




## VIDEO TIMING

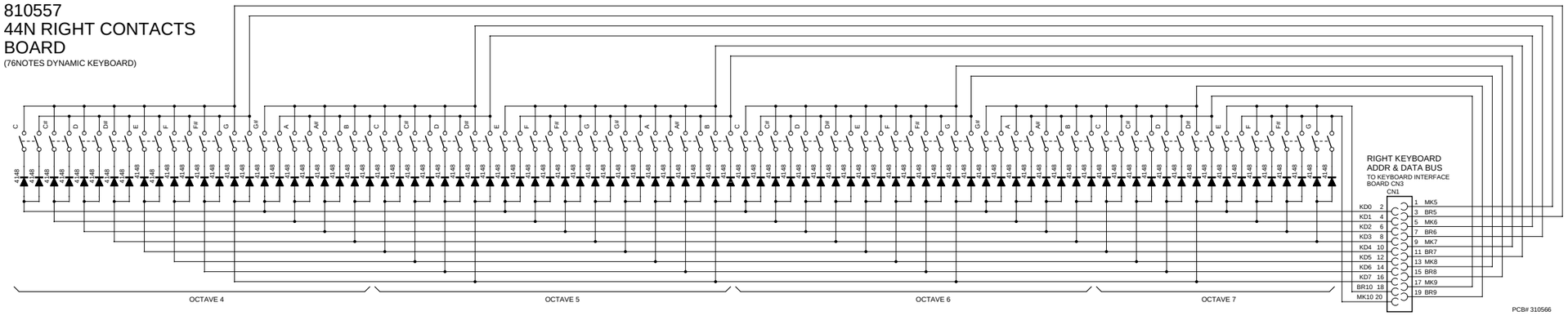



## FLOPPY DISK DRIVE AND HARD DISK TIMINGS

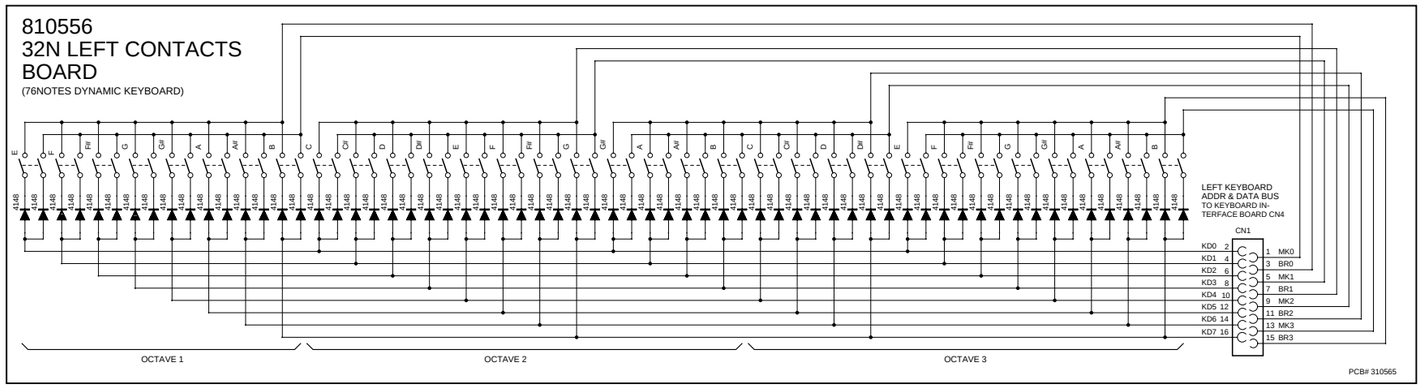



| | | | |
|---|---|---|---|
| DRW BOCCATO | DWG# 550146 | SCHEMATIC DIAGRAM | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DISK: 64 PART: | TIMING TABLE | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. PANNELLI | REV: 17-04-98 | | |

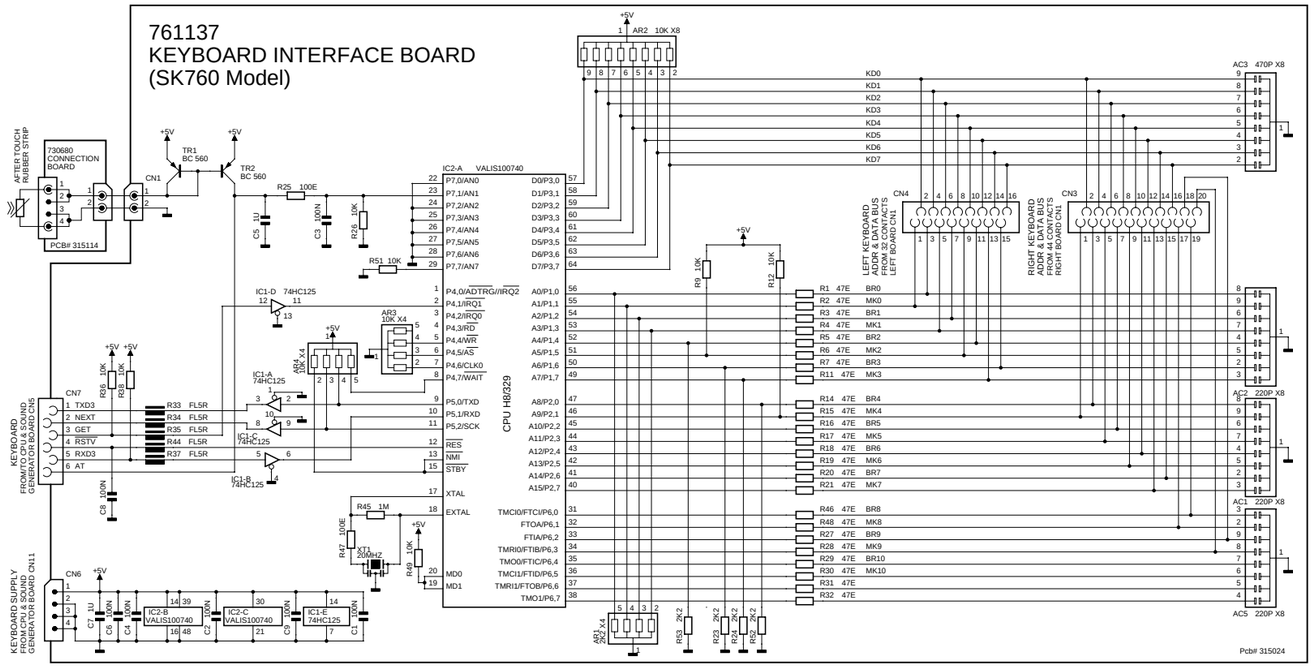
## 810557
## 44N RIGHT CONTACTS BOARD
(76NOTES DYNAMIC KEYBOARD)



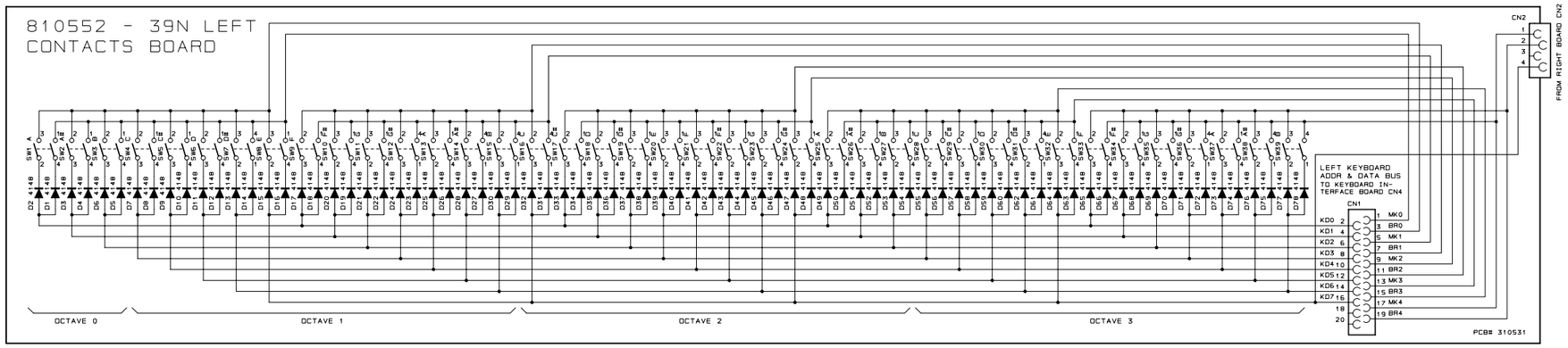

## 810556
## 32N LEFT CONTACTS BOARD
(76NOTES DYNAMIC KEYBOARD)

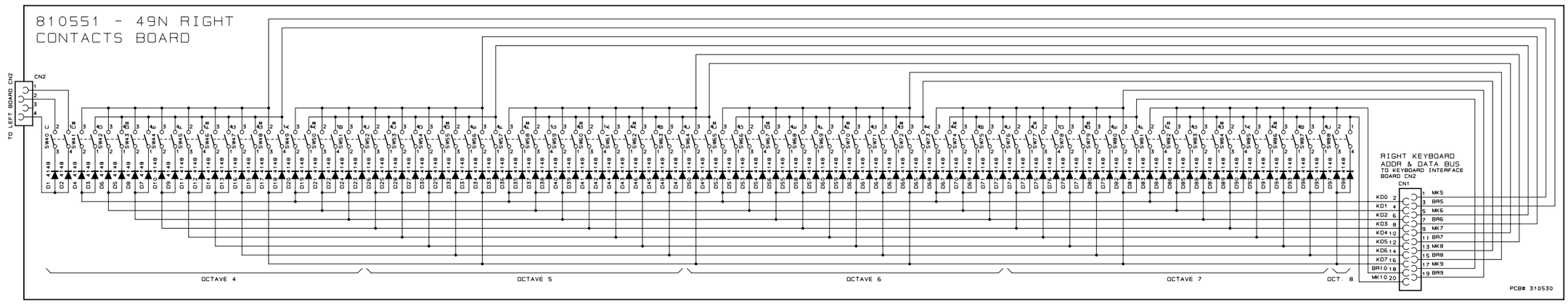


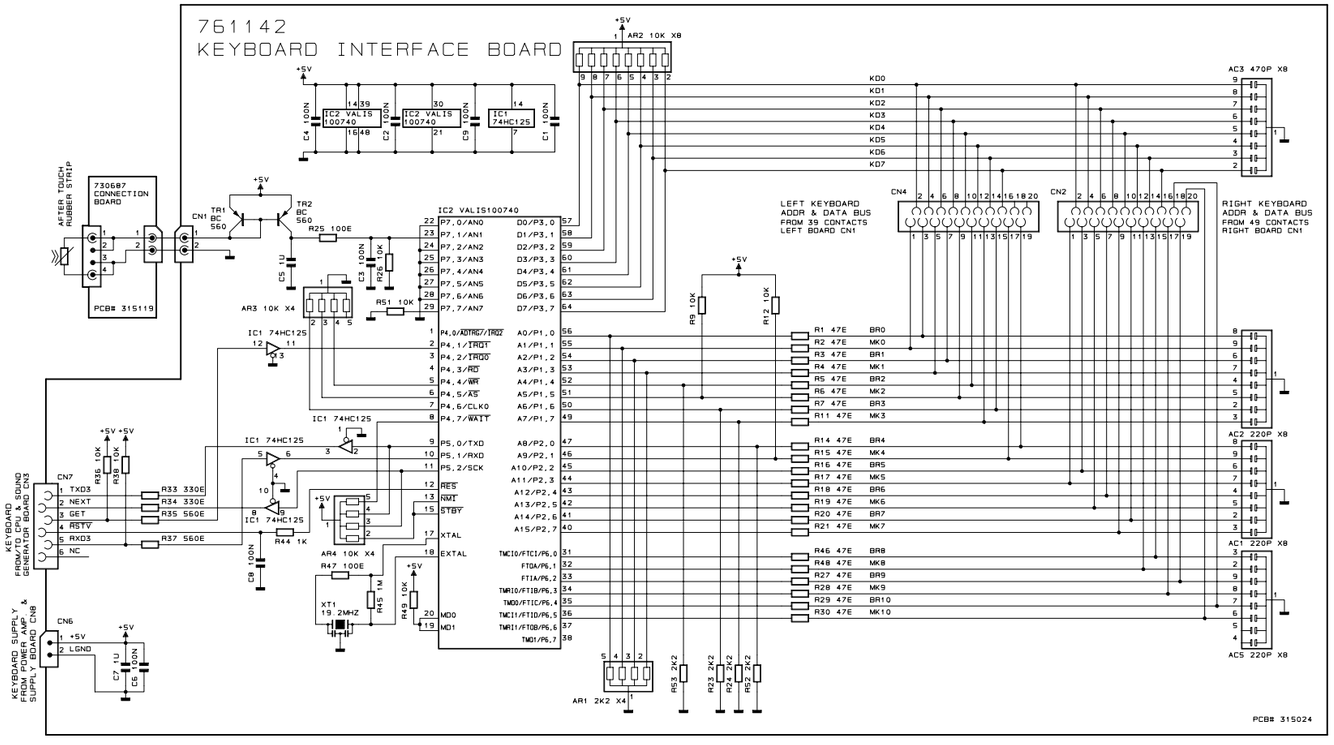

## 761137
## KEYBOARD INTERFACE BOARD (SK760 Model)




| | | | |
|---|---|---|---|
| DRW BOCCATO | DWG# 550180 | PCB# 310565 310566 315024 | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DSK# 5 PART: 1/1 | SCHEMATIC DIAGRAM SK760 CONTACTS BOARD & KEYBOARD INTEFACE BOARD | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. PANNELLI | REV: 22/02/99 | | |

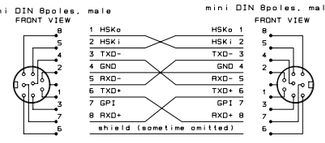


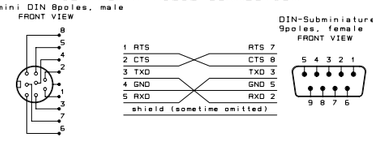



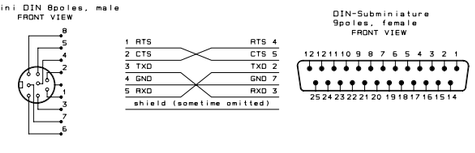

## KEYBOARD - COMPUTER CONNECTIONS

### APPLE MACINTOSH RS422 CONNECTION



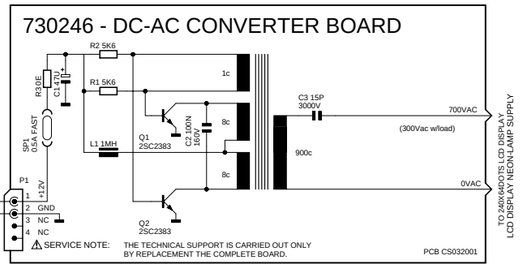

### IBM PC/AT RS232 CONNECTION



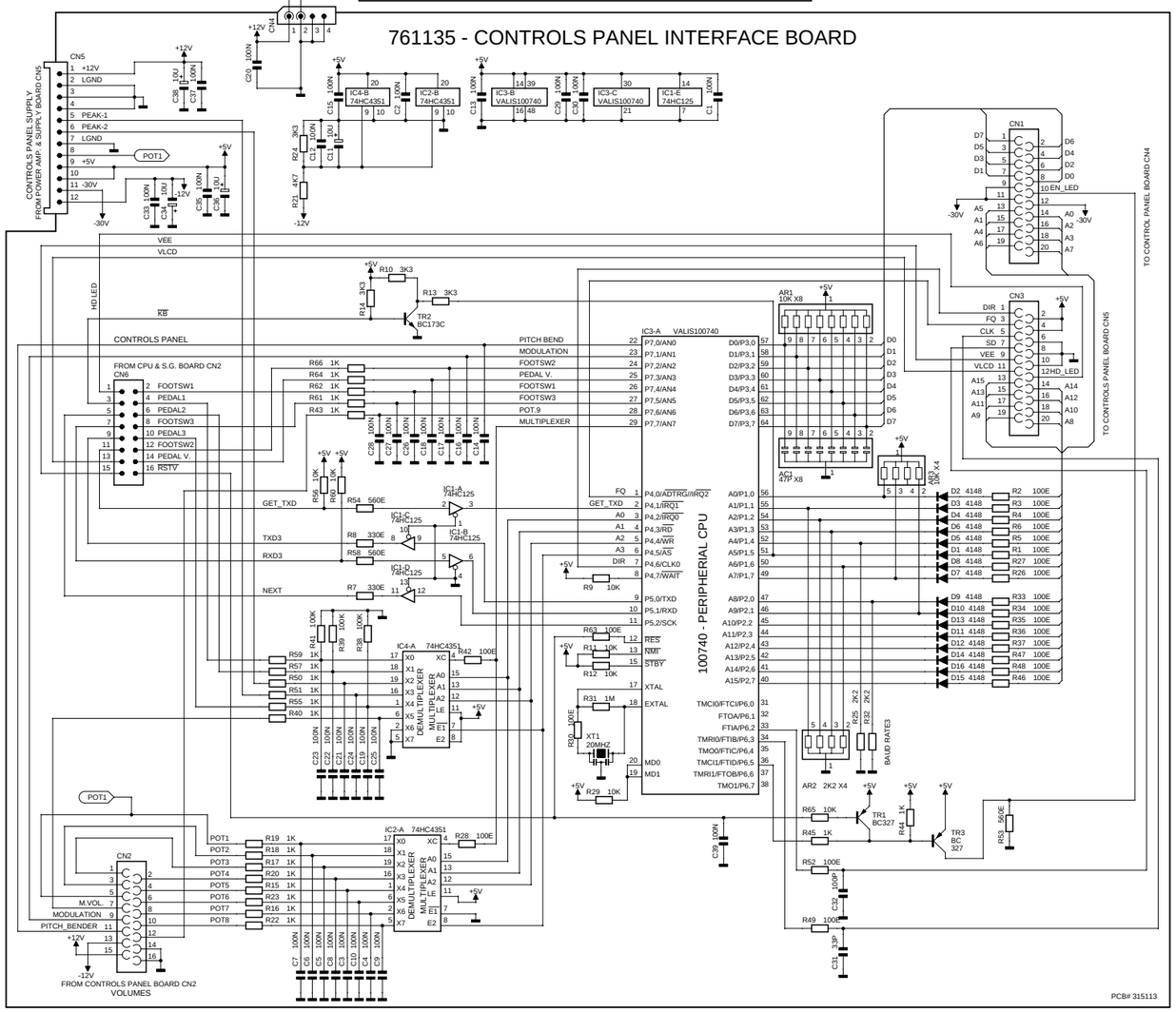




| | | | |
|---|---|---|---|
| DRW GIOCATO | DWG# 550181 | PCB# 310531 310530 315024 | GENERALMUSIC S.p.A. ITALY |
| CKD GIORGIBELLI | DSK# 5 PART: 1/1 | SCHEMATIC DIAGRAM CONTACTS BOARD & KEYBOARD INTEFACE BOARD | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. GIANNELLI | REV: 22/02/99 | | |

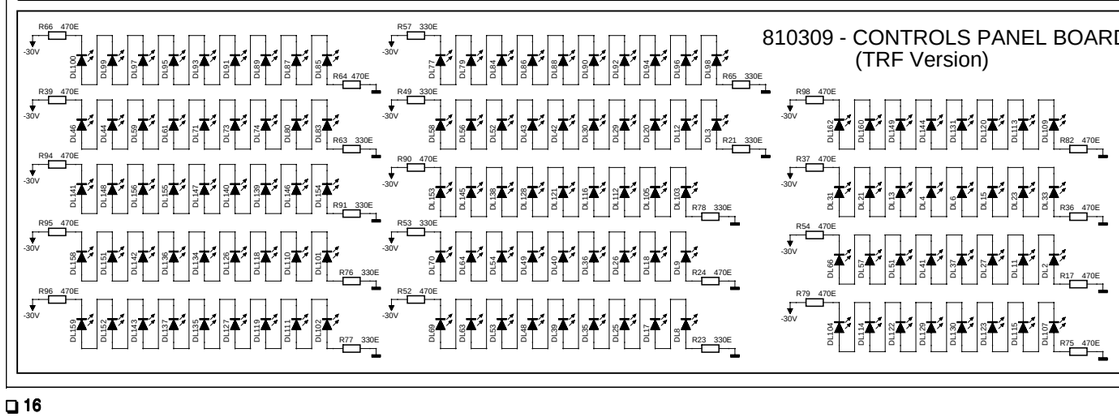
# 730246 - DC-AC CONVERTER BOARD

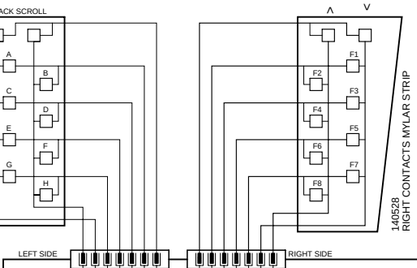


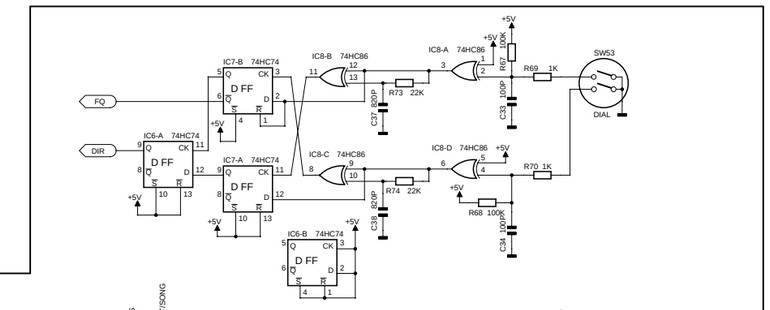

# 761135 - CONTROLS PANEL INTERFACE BOARD

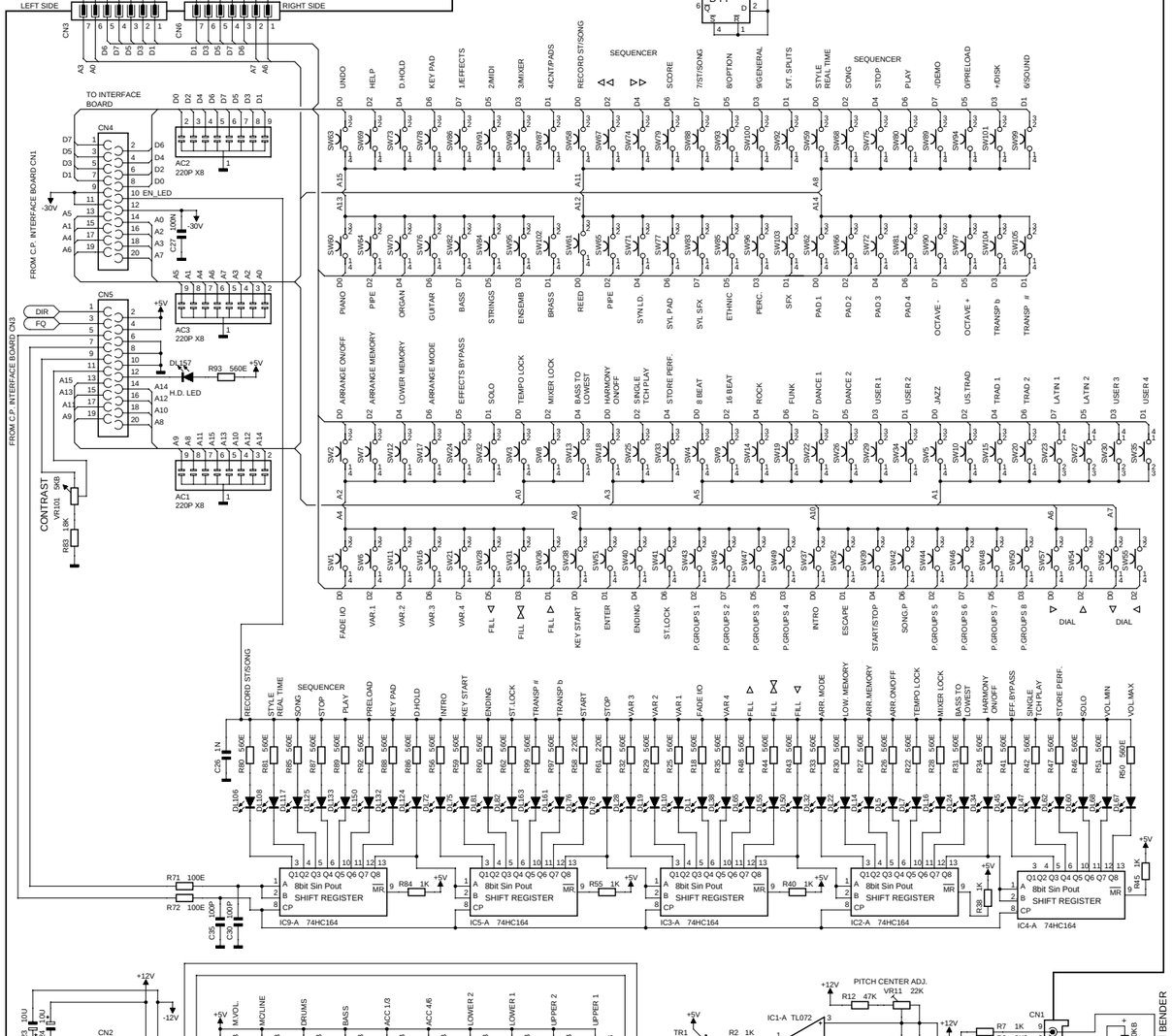


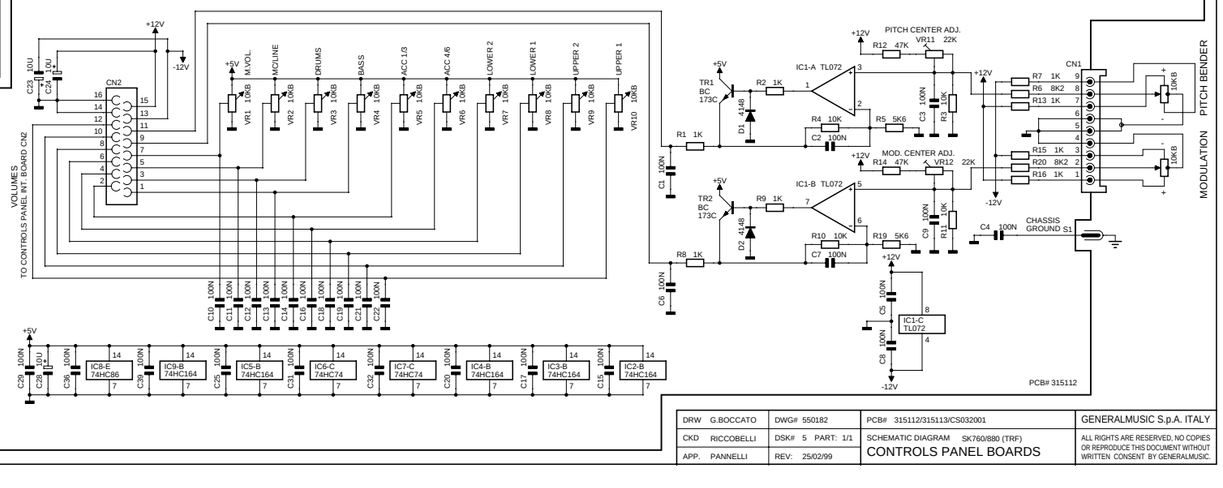

# 810309 - CONTROLS PANEL BOARD (TRF Version)



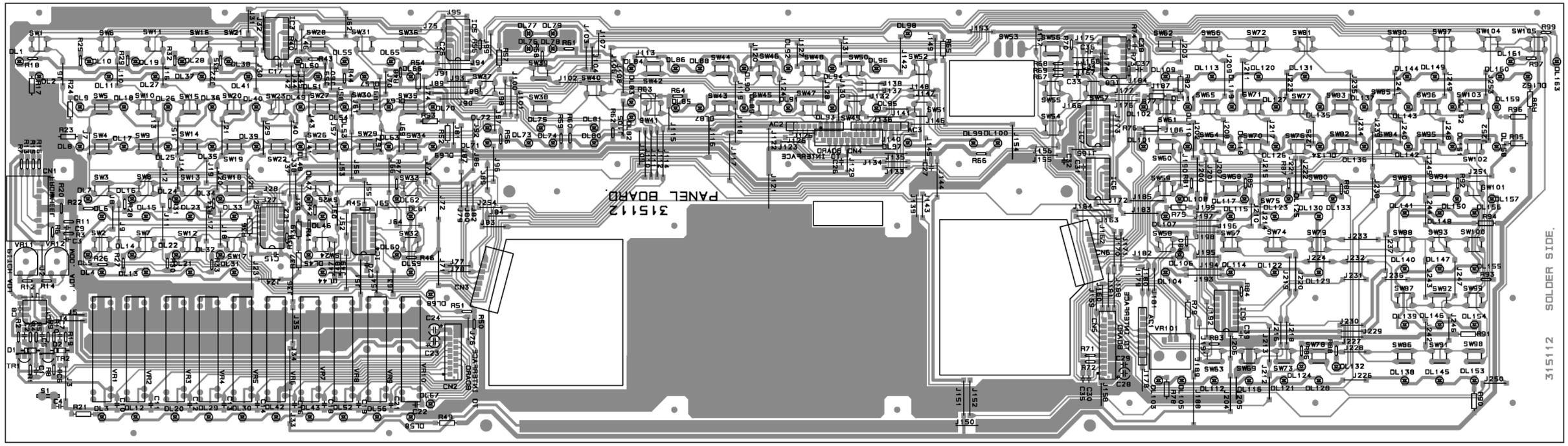



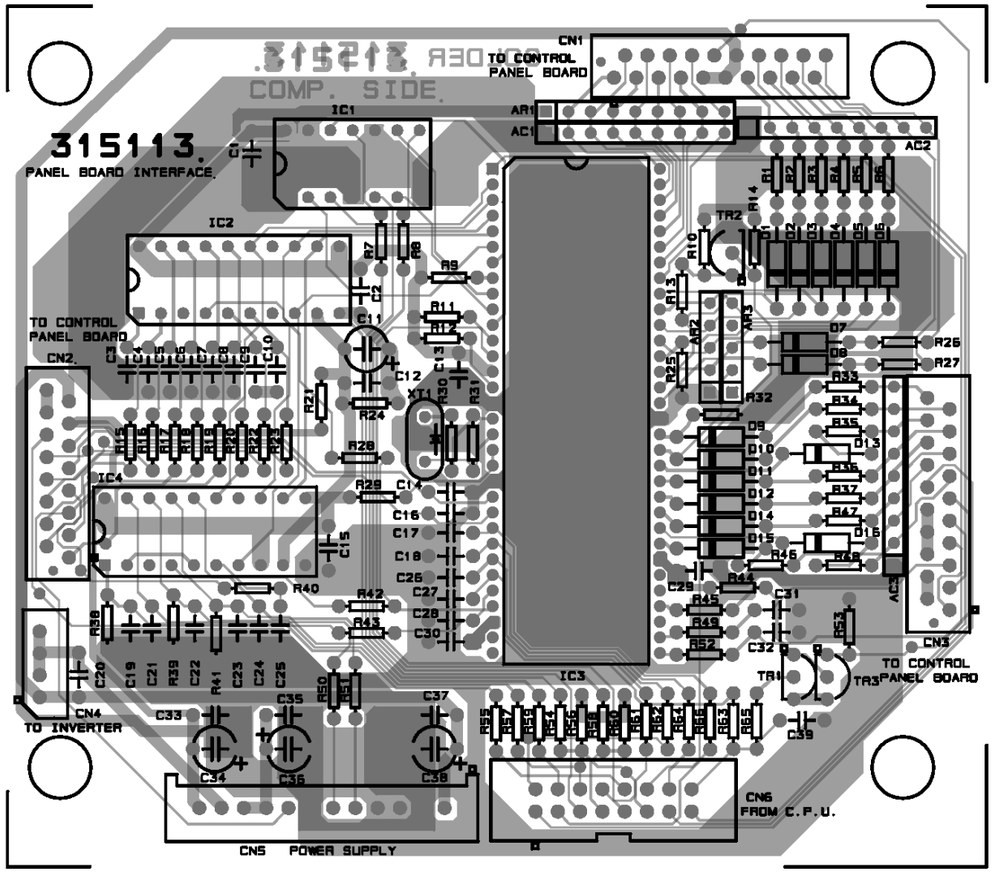



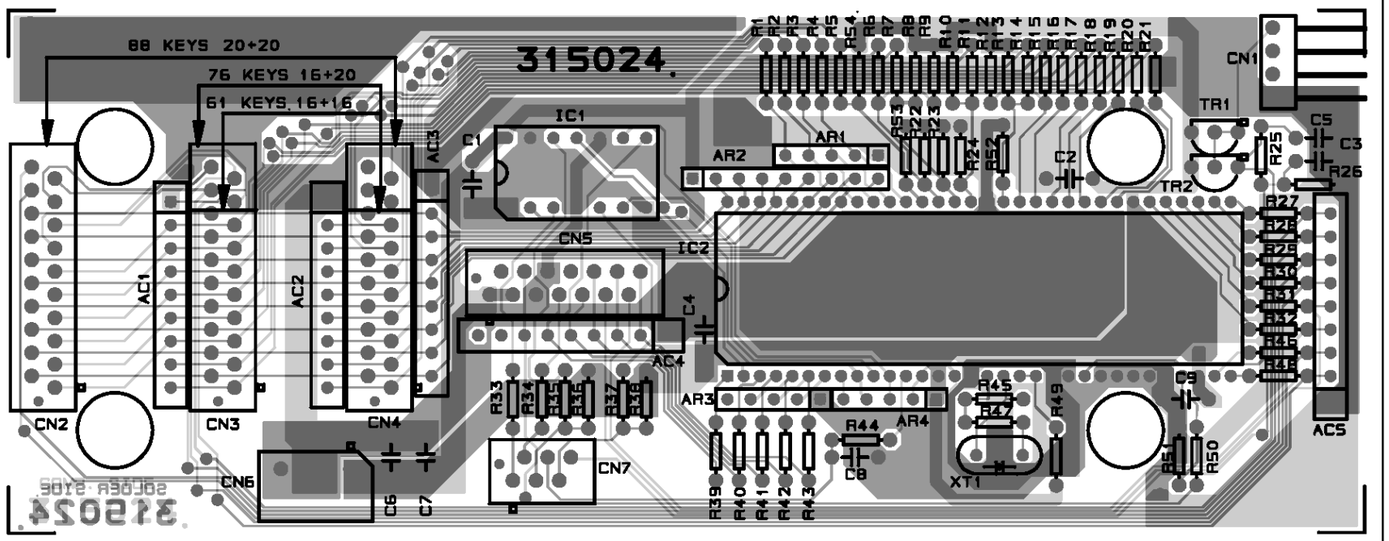

| | | | |
|---|---|---|---|
| DRW G.BOCCATO | DWG# 550182 | PCB# 315112/315113/CS032001 | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DSK# 5 PART: 1/1 | SCHEMATIC DIAGRAM SK760/880 (TRF) | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. PANNELLI | REV: 25/02/99 | CONTROLS PANEL BOARDS | |




**CONTROLS PANEL BOARD (TRF)(PCB# 315112) (reverse layout)**



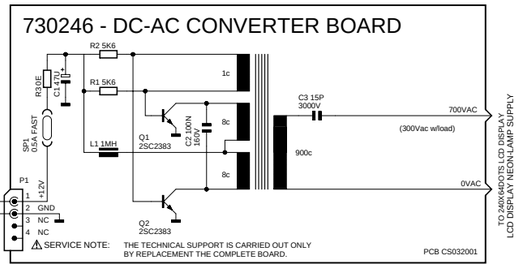

**CONTROLS PANEL INTERFACE BOARD (PCB# 315113)**



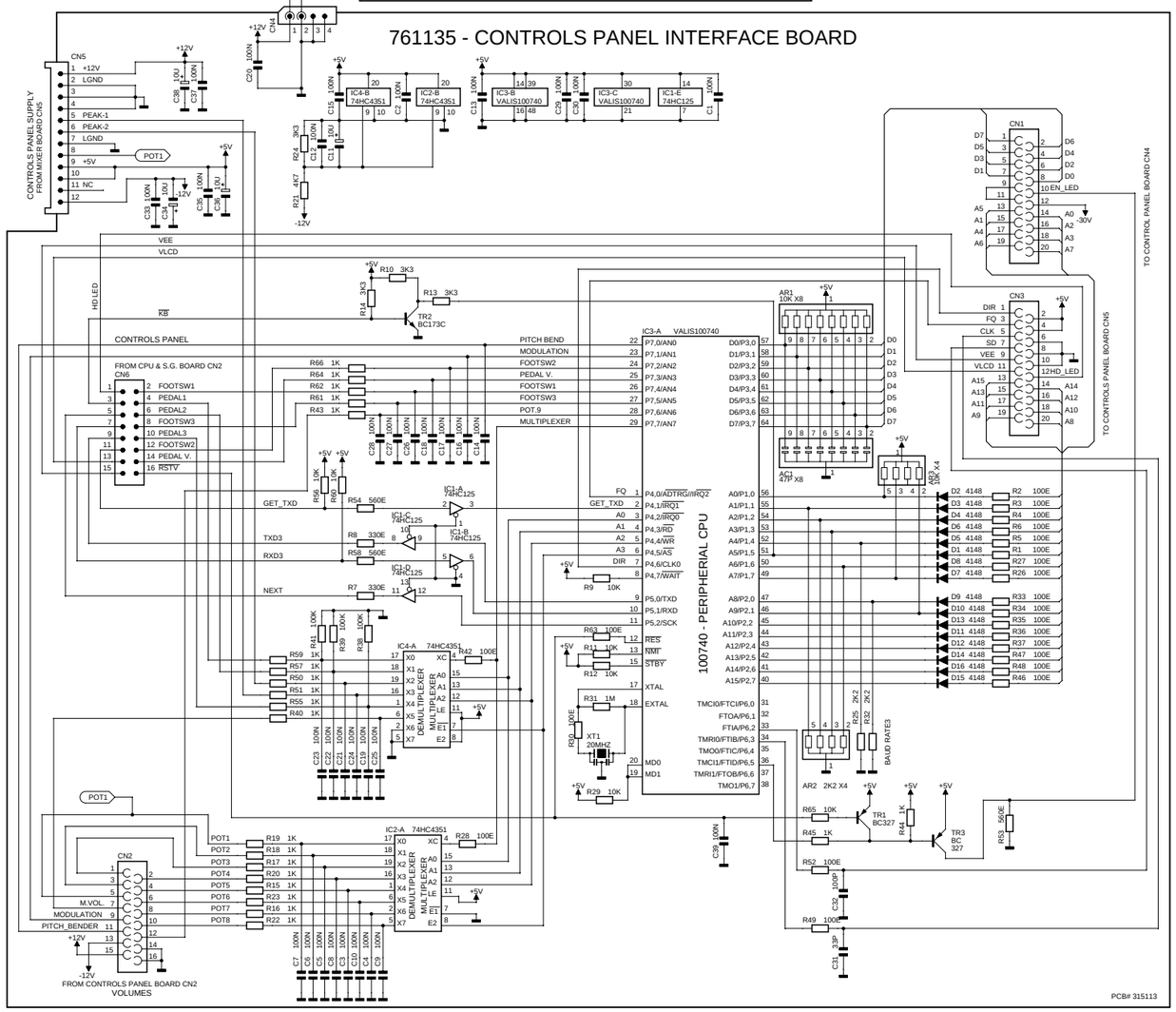

**KEYBOARD INTERFACE BOARD (PCB# 315024)**

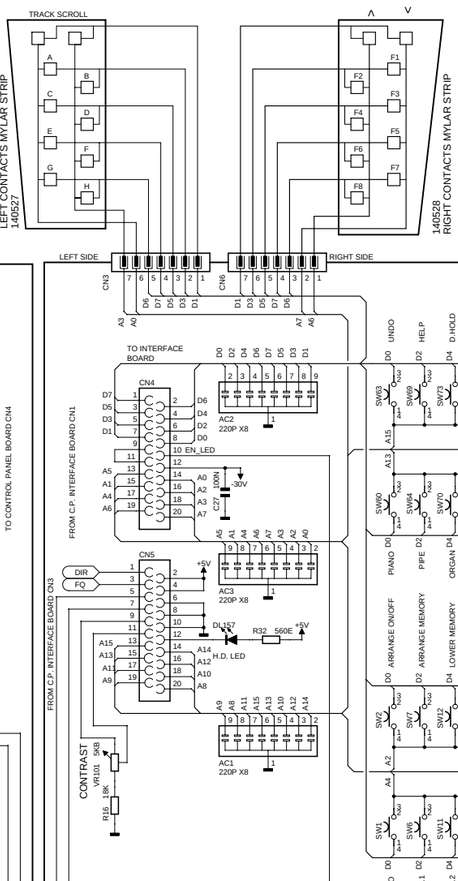
| | | | |
|---|---|---|---|
| DRW: BOCCATO | DWG: 315112/113 315024 | SCHEMATIC DIAGRAM SK760/880 | GENERALMUSIC S.p.A. Italy |
| CKD: RICCOBELLI | DISK: 5 PART: 1/1 | Controls Panel with its Interface and Keyboard Interface Board Pcb Layouts | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP: PANNELLI | REV: 28-07-97 | | |

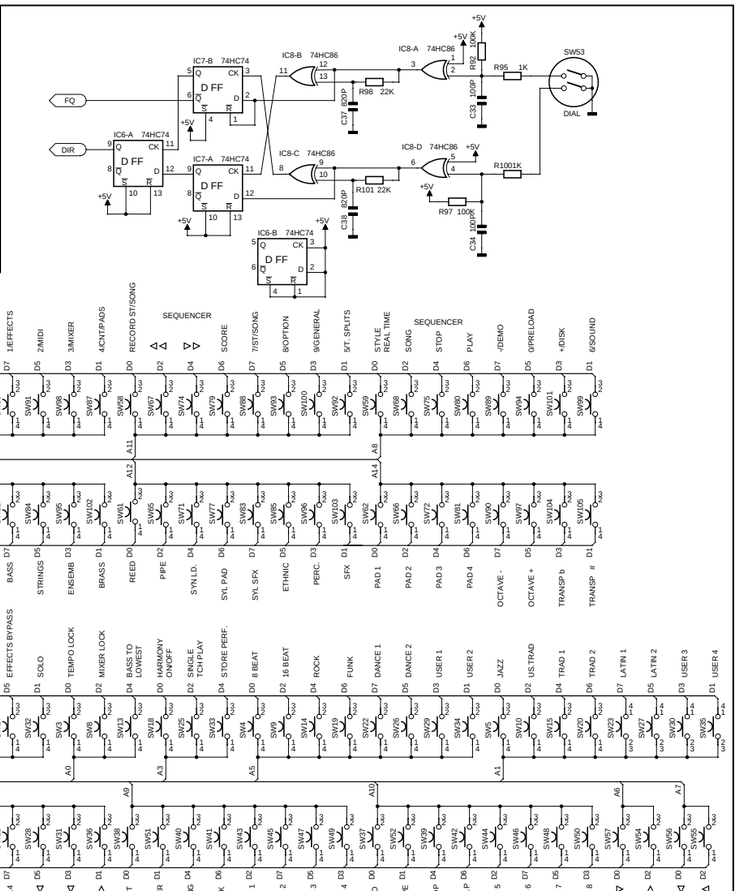
# 730246 - DC-AC CONVERTER BOARD

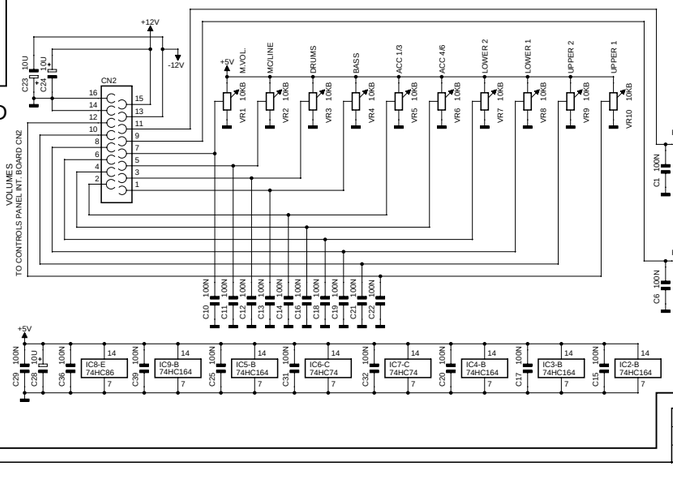


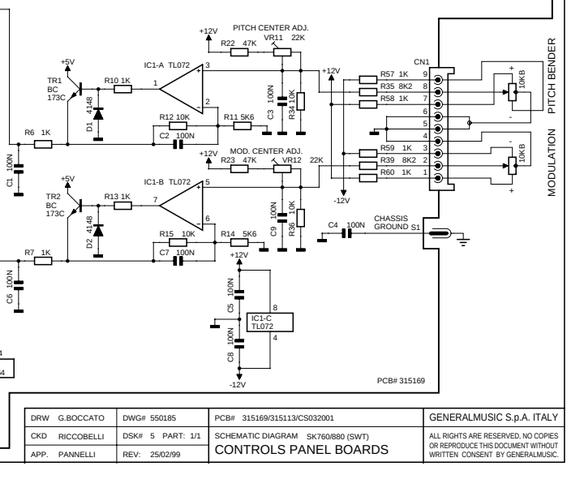

# 761135 - CONTROLS PANEL INTERFACE BOARD



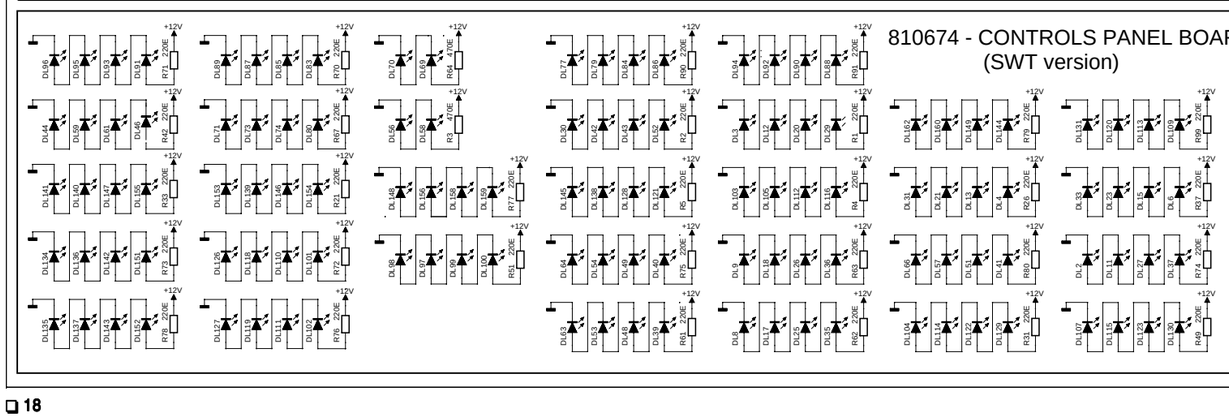



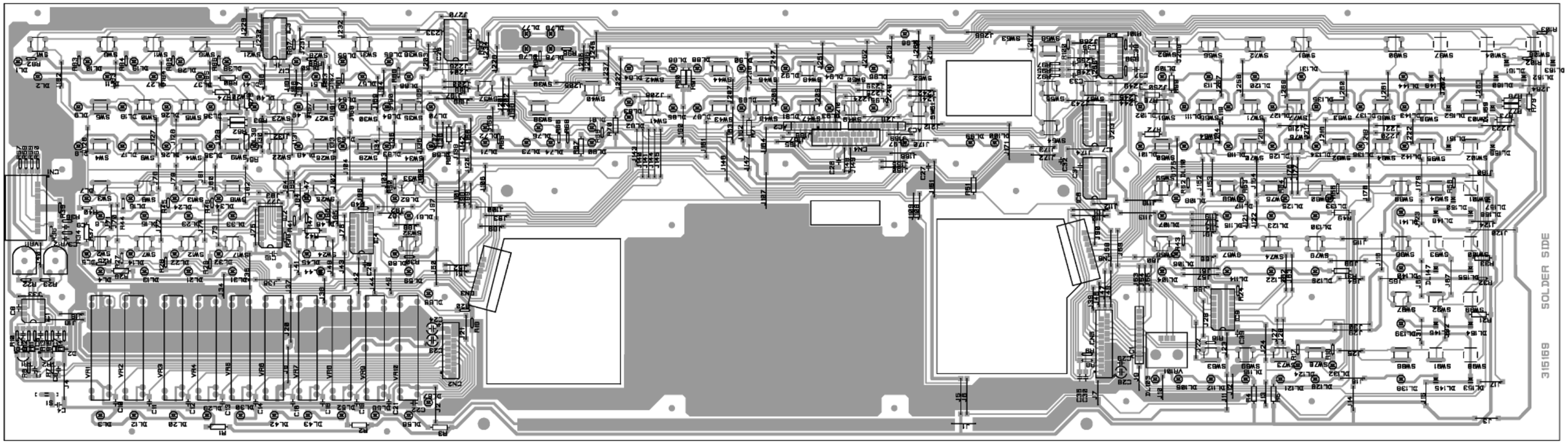



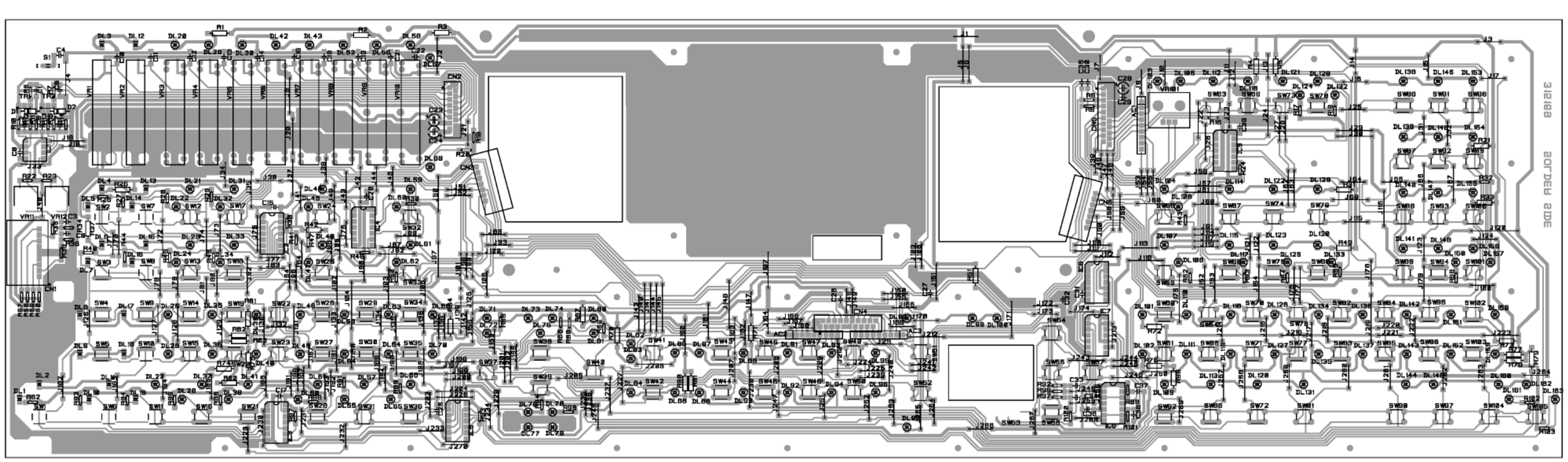

# 810674 - CONTROLS PANEL BOARD (SWT version)



| | | | |
|---|---|---|---|
| DRW G.BOCCATO | DWG# 550185 | PCB# 315169/315113/CS032001 | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DSK# 5 PART: 1/1 | SCHEMATIC DIAGRAM SK760/880 (SWT) | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. PANNELLI | REV: 25/02/99 | CONTROLS PANEL BOARDS | |




**CONTROLS PANEL BOARD (SWT) (PCB# 315083)(reverse layout)**

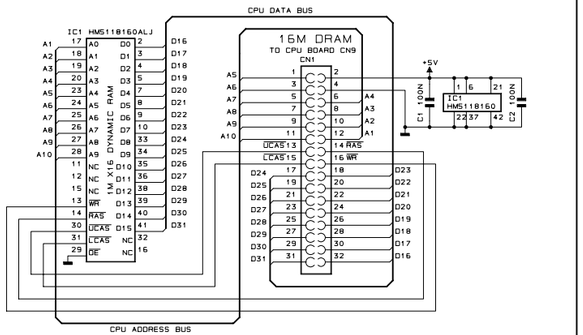



**CONTROLS PANEL BOARD (SWT) (PCB# 315083)**

| | | | |
|---|---|---|---|
| DRW: BOCCATO | DWG: 315169 | SCHEMATIC DIAGRAM SK760/880 | GENERALMUSIC S.p.A. Italy |
| CKD: RICCOBELLI | DISK: 5 PART: 1/1 | Controls Panel Board Pcb Layout (SWT) | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP: PANNELLI | REV: 25-02-99 | | |

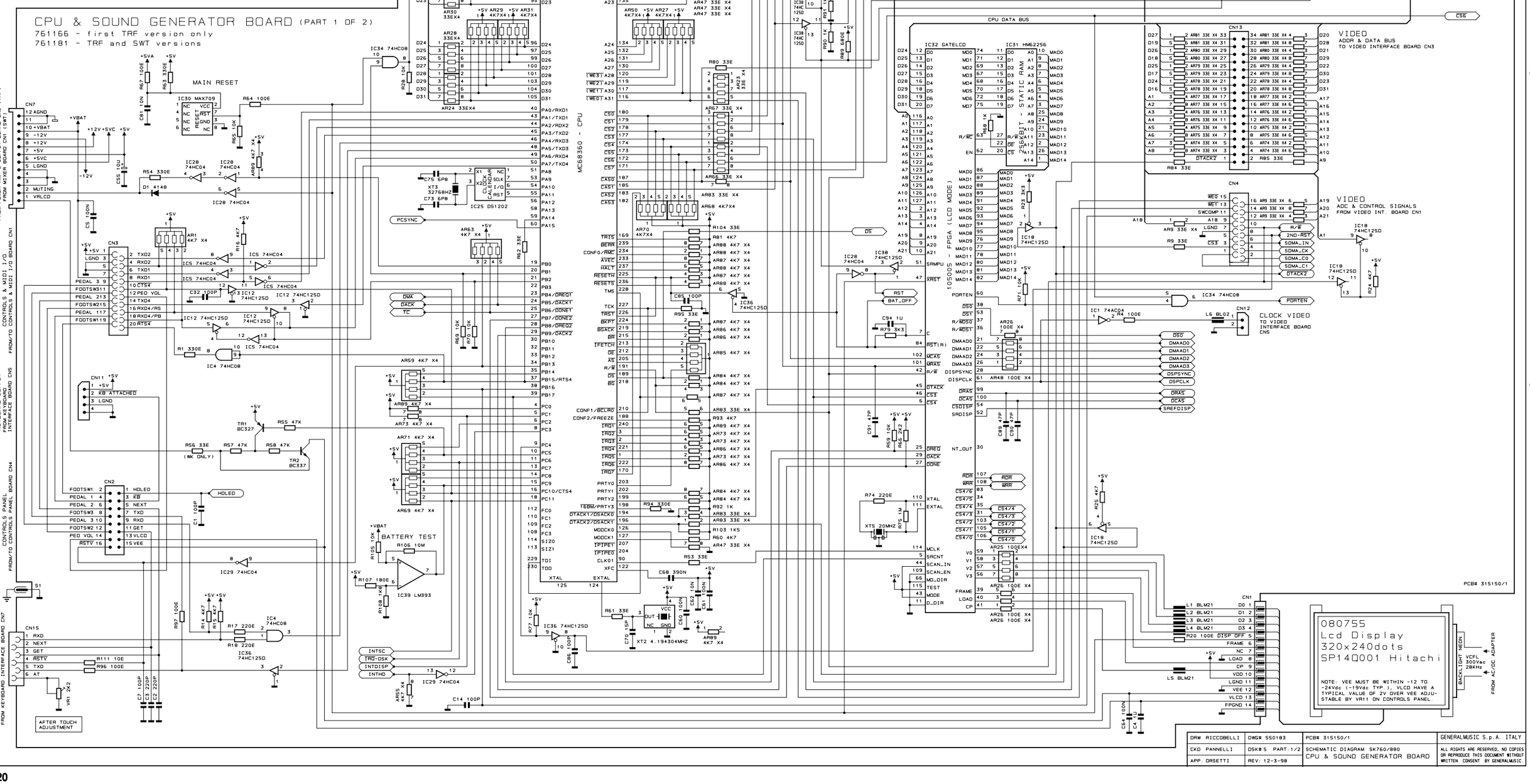
# 761094 - 2Mbyte DRAM MODULE

SUPPLIED WITH THE OPTIONAL "HARD DISK INSTALLATION KIT"
OR AS OPTIONAL "2MBYTE BACKED SAMPLE DRAM KIT"




# CPU & SOUND GENERATOR BOARD (PART 1 OF 2)

761156 - first TRF version only
761181 - TRF and SWT versions




| | | | |
|---|---|---|---|
| DRW RICCOBELLI | DWG# 550103 | PCB# 315150/1 | GENERALMUSIC S.p.A. ITALY |
| CKD PANNELLI | DSK# 5 PART: 1/2 | SCHEMATIC DIAGRAM SK760/880 | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. ORSETTI | REV: 12-3-98 | CPU & SOUND GENERATOR BOARD | |

# CPU & SOUND GENERATOR BOARD (PART 2 OF 2)

761165 - first TRF version only
761181 - TRF and SWT versions

## FLOPPY & HARD DISK INTERFACE

## 761093 - BUFFER MODULE

(SUPPLIED WITH OPTIONAL "A/V WITH VOCAL PROCESSOR KIT")

## 761168 8MByte DRAM MODULE

## SIMM MODULES

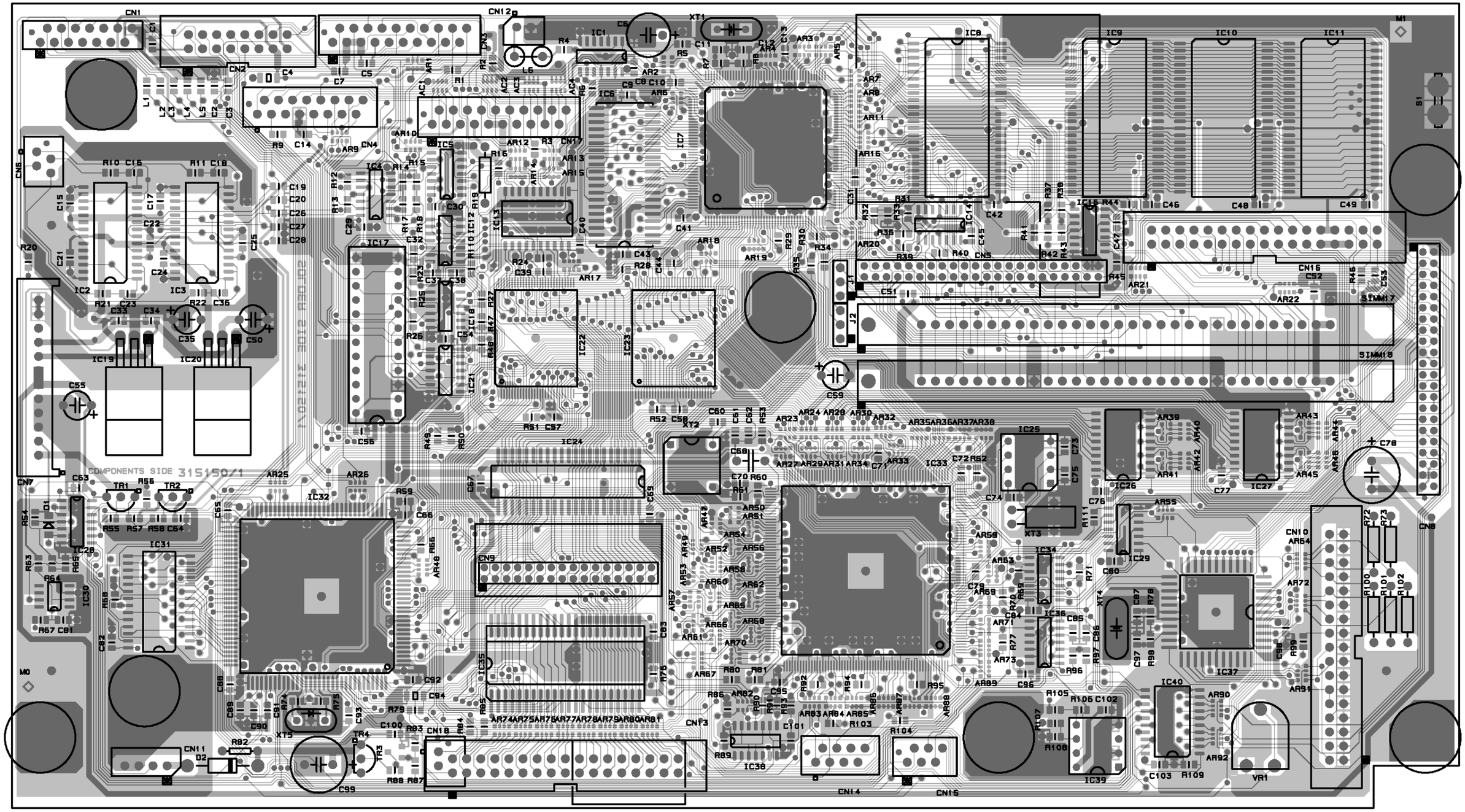
NOTE THE SIMM MODULE COMPATIBLES ARE:
1MBYTE (X8 OR X9) 30-PIN 70nS MAXIMUM ACCESS TIME
4MBYTE (X8 OR X9) 30-PIN 70nS MAXIMUM ACCESS TIME
16MBYTE (X8 OR X9) 30-PIN 70nS MAXIMUM ACCESS TIME
THE MODULES MUST BE TWO,
ALL MODULES ARE PURCHASABLE C/O COMPUTERS SHOP,
OTHERWISE CAN BE REQUIRED FROM GENERALMUSIC
(ORDERING CODE: 970225 - 8MBYTE SIMM DRAM KIT,
WHICH INCLUDES TWO 4MBYTE MODULES).

J1 A = BUFFER MODULES
B = SIMM MODULES
IF NONE MODULES ARE INSTALLED ON LOCATIONS SIMM17 & SIMM18
J1 POSITION IS UNIMPORTANT

J2 8MB = 8Mbyte 4Msamples DRAM MODULE
2MB = 2Mbyte 1Msamples DRAM MODULE
IF NONE MODULE IS INSTALLED ON LOCATION CN5, J2 MUST BE POSITIONATED ON "A".

NOTE: INSTALL SIMM INSTEAD BUFFERS MODULES IF THE KEYBOARD HAS BOTH A/V & SIMM KITS ON IT.

| | | | |
|---|---|---|---|
| DRW RICCOBELLI | DWG# 550184 | PCB# 315150/1 | GENERALMUSIC S.p.A. ITALY |
| CKD PANNELLI | DSK# S PART: 2/2 | SCHEMATIC DIAGRAM SK760/880 | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP. DRSETTI | REV: 12-3-98 | CPU & SOUND GENERATOR BOARD | |




**CPU & SOUND GENERATOR BOARD (PCB# 315150/1)**

| | | | |
|---|---|---|---|
| DRW: BOCCATO | DWG: 315150/1 | SCHEMATIC DIAGRAM SK760/880 | GENERALMUSIC S.p.A. Italy |
| CKD: RICCOBELLI | DISK: 5 PART: 1/1 | Cpu & Sound Generator Board Pcb Layout | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP: PANNELLI | REV: 25-02-99 | | |

CN2 - to Controls Panel Board

CN3 - to MIDI I/O Board

J1 - Set the jumper as follow:
1-2 "A" if Buffer modules are installed
2-3 "B" if SIMM DRAM modules are installed
note: the buffer modules are supplied with A/V & Vocal processor kit, if neither buffer or Simm modules are installed, J1 position is ininfluent.

J2 - Set this jumper as follow:
1-2 for 8MB SAMPLE DRAM expansion
2-3 for 2MB SAMPLE DRAM expansion
if no DRAM expansion is installed the jumper position must be 1-2.

CN1 or CN17 to Lcd Display
(depend by organ model)

CN4 & CN12 to A/V
& Vocal Processor Board

CN5 - SAMPLE DRAM Expansion
Two sizes are available:
970213 - 2Mbyte (32pins)
970331 - 8Mbyte (44pins)

CN6 - to Outputs or
Amplifier Board

Ground Connection

CN16 - SCSI Expansion

CN8 - HARD DISK Expansion
970207 - Optional mounting kit
for Hard disk unit

CN7 - from Power
Supply Board

SIMM DRAM Expansion Slots,
These modules must be two as:
1M x8 or x9 70nS 30-pins
4M x8 or x9 70nS 30-pins
only 4Mx2 are available from
Generalmusic as code 970225

CN10 - to 3.5" Disk Drive

CN11 - to Keyboard
Interface Board

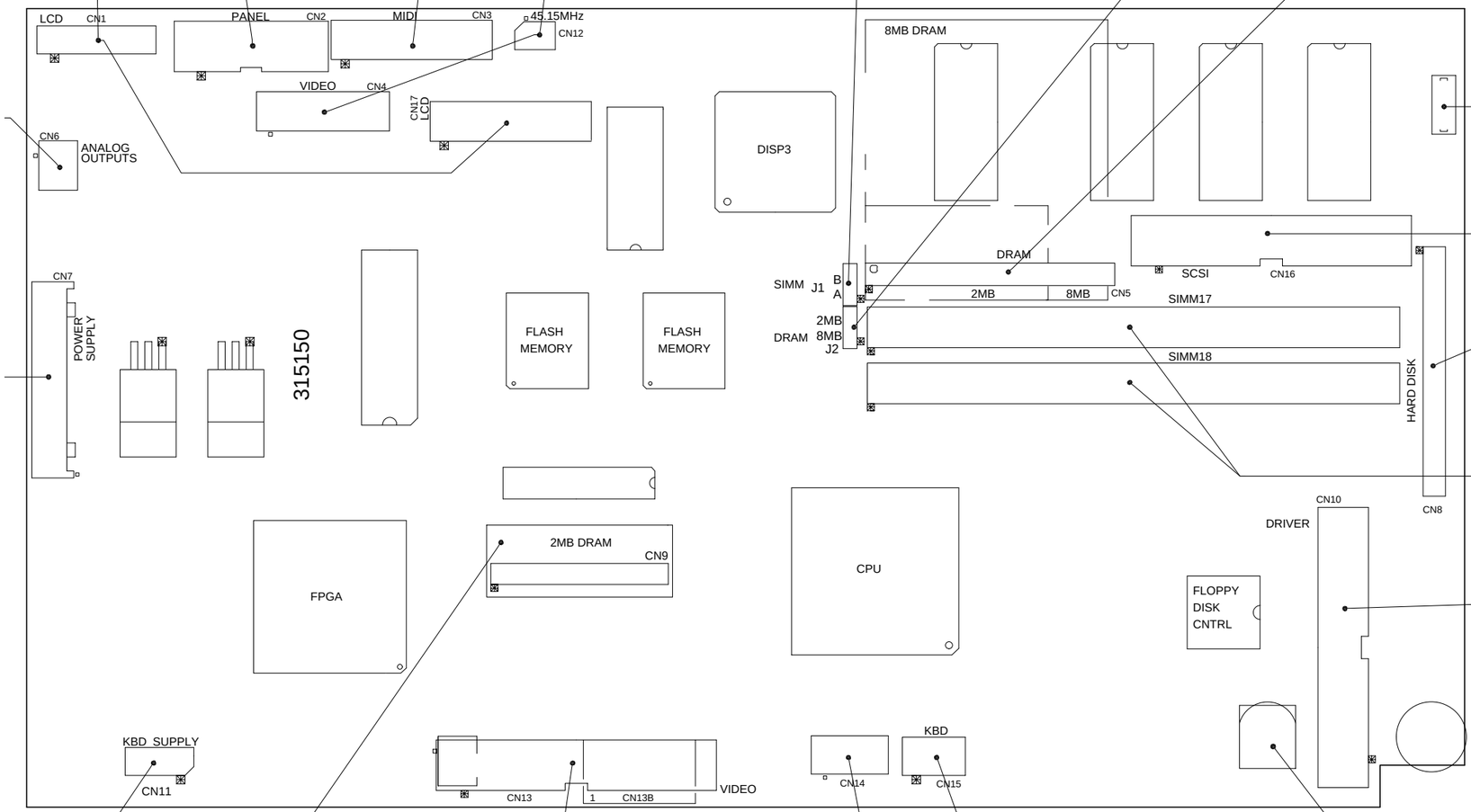
CN9 - 2Mbyte DRAM expansion
supplied with Hard Disk mounting kit

CN13 (and also CN18) - these connectors
are connected to A/V and Vocal Processor Board
the configuration of these depend by organ model

CN14 - Used only for development

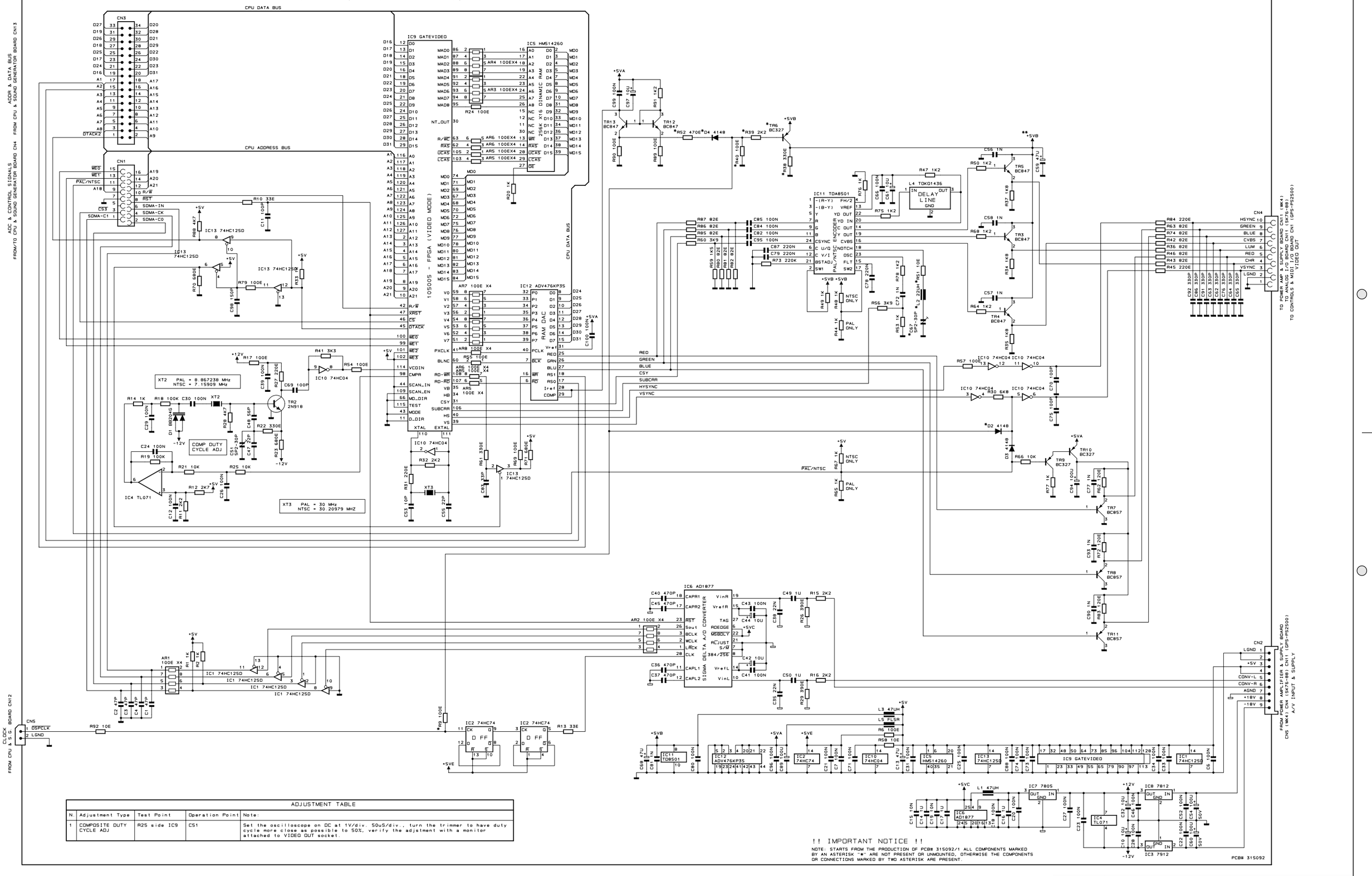
CN15 - from Keyboard Interface Board

VR1 - After Touch Adjustment




| | | | |
|---|---|---|---|
| DRW G.Boccato | DWG# 550147 | PCB# | GENERALMUSIC S.p.A. ITALY |
| CKD N.Riccobelli | DISK: 64 PRT: 1/1 | Cpu & Sound Generator Board<br>General User Map | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. Orsetti | REV: 07/04/98 | | |

# 760993 - AUDIO/VIDEO INTERFACE BOARD (PAL VERSION)
# 760994 - AUDIO/VIDEO INTERFACE BOARD (NTSC VERSION)


CPU DATA BUS
CPU ADDRESS BUS
ADDR & DATA BUS
FROM CPU & SOUND GENERATOR BOARD CN4
ADC & CONTROL SIGNALS
FROM/TO CPU & SOUND GENERATOR BOARD CN4
IC9 GATEVIDEO
105005 - FPGA (VIDEO MODE)
IC5 HM514260
256K X16 DYNAMIC RAM
IC12 ADV476KP35
RAM DAC
IC11 TDA8501
PAL/NTSC ENCODER
DELAY LINE
L4 TOKO1436
IC6 AD1877
DELTA SIGMA A/D CONVERTER
IC7 7805
IC8 7812
IC3 7912
IC4 TL071
XT2 PAL = 8.867238 MHz
NTSC = 7.15909 MHz
XT3 PAL = 30 MHz
NTSC = 30.20979 MHz
COMP DUTY CYCLE ADJ
NTSC ONLY
PAL ONLY
CN1
CN2
CN3
CN4
CN5
TO POWER AMP & SUPPLY BOARD CN1 (MK4)
TO CONTROLS & MIDI I/O BOARD CN1 (GPS-PS2500)
VIDEO OUT
FROM POWER AMPLIFIER & SUPPLY BOARD CN6 (MK4) LINE A/V INPUT & SUPPLY
CLOCK FROM CPU & S.S. BOARD CN12
!! IMPORTANT NOTICE !!
NOTE: STARTS FROM THE PRODUCTION OF PCB# 315092/1 ALL COMPONENTS MARKED BY AN ASTERISK '*' ARE NOT PRESENT OR UNMOUNTED, OTHERWISE THE COMPONENTS OR CONNECTIONS MARKED BY TWO ASTERISK ARE PRESENT.
PCB# 315092

| ADJUSTMENT TABLE | | | | |
|---|---|---|---|---|
| N. | Adjustment Type | Test Point | Operation Point | Note: |
| 1 | COMPOSITE DUTY CYCLE ADJ | R25 side IC9 | C51 | Set the oscilloscope on DC at 1V/div. 50uS/div., turn the trimmer to have duty cycle more close as possible to 50%, verify the adjstment with a monitor attached to VIDEO OUT socket. |

| | | | |
|---|---|---|---|
| DRW RICCOBELLI | DWG# 550113 | PCB# 315092 | GENERALMUSIC S.p.A. ITALY |
| CKD PANNELLI | DSK# 41 PART: 1/1 | SCHEMATIC DIAGRAM SK76-SK88 | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. ORSETTI | REV: 16-10-96 | AUDIO/VIDEO INTERFACE BOARD | |

761143 - AUDIO/VIDEO WITH VOCAL PROCESSOR BOARD (PAL VERSION)
761152 - AUDIO/VIDEO WITH VOCAL PROCESSOR BOARD (NTSC VERSION)

ADDR & DATA BUS
FROM/TO CPU & SOUND GENERATOR BOARD CN13

ADC & CONTROL SIGNALS
FROM/TO CPU & SOUND GENERATOR BOARD CN14

CPU DATA BUS

CPU ADDRESS BUS

105005 - FPGA (VIDEO MODE)

IC18-A GATEVIDEO

IC16-A HM514260

256K X16 DYNAMIC RAM

IC19-A TD8501 PAL/NTSC ENCODER

IC21-A ADV476KP35 RAM DAC

IC17-A ADSP2181

IDMA BOOT EPROM BOOT

IC4 MAX709

IC1-A 74AC138 1 OF 8 DECODER

IC6-A AD1877 SIGMA DELTA A/D CONVERTER

IC12-A 27C4001D UNMODIFIED FUTURE EXPANSION

DELAY LINE

CHROMA SUBCARRIER PLL

PAL 8.867238MHz
NTSC 7.15909MHz

COMP DUTY CICLE ADJ

PAL 30MHz
NTSC 30.2097MHz

XT1 16MHZ

CN1 CN2 CN3 CN4 CN5

CN4
HSYNC 10
GREEN 9
BLUE 8
CVBS 7
LUM 6
RED 5
CHR 4
VSYNC 3
LGND 2
1
TO POWER AMP & SUPPLY BOARD CN11 (WK)
TO AUDIO/VIDEO BOARD CN1 (P.S-GPS)
TO CONTROLS & MIDI I/C BOARD CN1 (P.S-GPS)
VIDEO OUT

UNUSED COMPONENTS

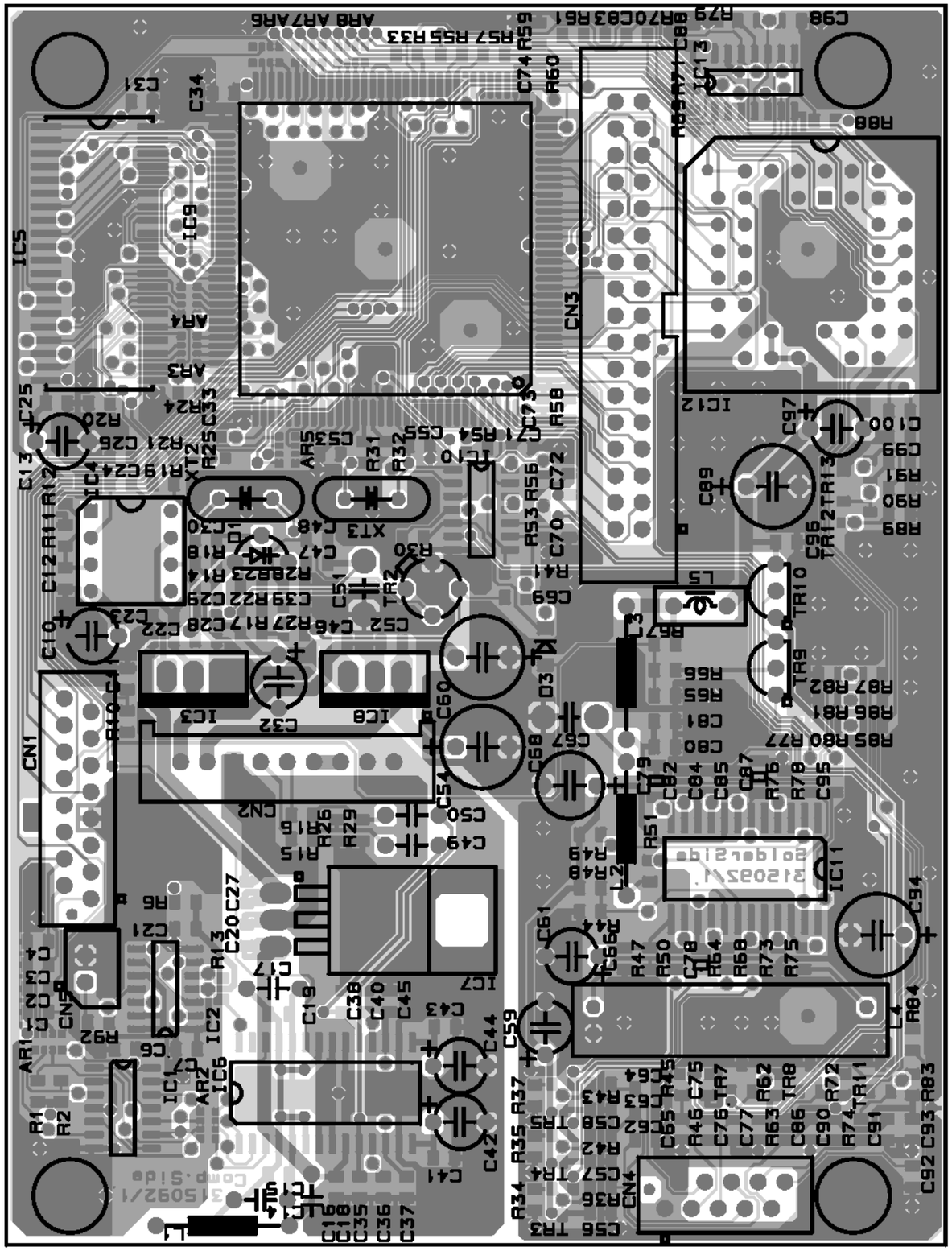
IC2-B 74HC74 D FF
IC20-B 74HC04
IC19-D 74HC00

Adjustment Table

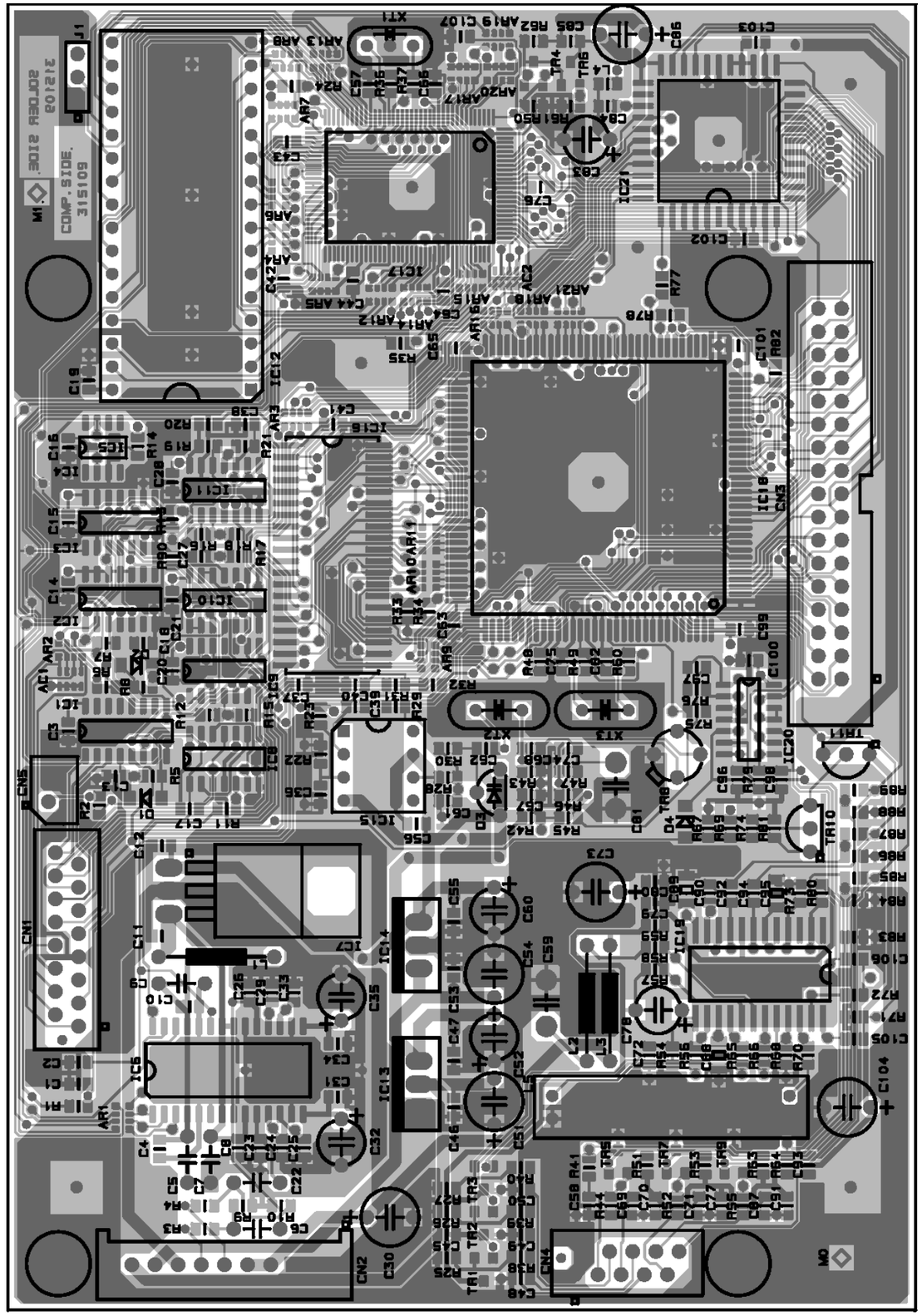
| N. | Adjustment Type | Test Point | Operation Point | Note: |
|---|---|---|---|---|
| 1 | COMPOSITE DUTY CYCLE ADJ | R32 side IC18 | C81 | Set the oscilloscope on DC at 1V/div. 50uS/div., turn the trimmer to have duty cycle more close as possible to 50%, verify the adjustment with a monitor attached to VIDEO OUT socket. |

PCB# 315109

| | | | |
|---|---|---|---|
| DRW RICCOBELLI | DWG# 550137 | PCB# 315109 | GENERALMUSIC S.p.A. ITALY |
| CKD RICCOBELLI | DSK# 6 PART: 1/1 | SCHEMATIC DIAGRAM A/V WITH VOCAL PROCESSOR BOARD | ALL RIGHTS ARE RESERVED, NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC |
| APP. PANNELLI | REV: 19-01-00 | | |



AUDIO/VIDEO INTERFACE BOARD (PCB# 315092)



AUDIO/VIDEO INTERFACE BOARD (PCB# 315113)

| | | | |
|---|---|---|---|
| DRW: BOCCATO | DWG: 315150 | SCHEMATIC DIAGRAM SK760/880 | GENERALMUSIC S.p.A. Italy |
| CKD: RICCOBELLI | DISK: 5 PART: 1/1 | Cpu & Sound Generator Board Pcb Layout | ALL RIGHTS ARE RESERVED. NO COPIES OR REPRODUCE THIS DOCUMENT WITHOUT WRITTEN CONSENT BY GENERALMUSIC. |
| APP: PANNELLI | REV: 25-02-99 | | |

# Test Procedure and Adjustment

The procedures that follow must be executed subsequently in the order specified.
These procedures are not intended to repair a fault but only to check the correct instrument operations after a repairing execution.

## *Test Instruments*

- ☑ Dual trace oscilloscope
- ☑ Digital Multimeter

## *Accessories*

- ☑ 8Mbyte DRAM module
- ☑ 2Mbyte DRAM module
- ☑ 2 x 4Mbyte SIMM DRAM modules
- ☑ 1 Hard Disk Kit
- ☑ 1 Vocal Processor Kit
- ☑ 1 3.5inch Diskette
- ☑ 1 SCSI Kit
- ☑ Read/write SCSI device (ZIP, JAZ, Hard disk etc…)
- ☑ RS232 loopback (terminal 1-2 and 3-5 shorted)
- ☑ 2 jack-jack cables with a resistor divider inside plugs (10K/82ohm).

To check completely the keyboard are necessaries all the optional accessories installed, normally this keyboard have installed from the manufacturer the 2Mbyte DRAM module only.

## *Setup*

Install all the optional accessories: Hard disk and its 2Mbyte module (CN9), 8Mbyte module instead the pre-installed 2Mbyte module on Sample Dram connector CN5, the 2 SIMM modules, the SCSI and the Vocal processor kits, insert the diskette into 3.5" disk drive.
Set the jumpers on CPU board as follow: J1 at position B and J2 at position 8MB.
Set the JP1 and JP2 jumpers on Supply or Mixer board at position A.
Connect the R and L outputs to the MIC/LINE inputs using the appropriate cable.
Connect the external SCSI device to the SCSI socket.
Plug the RS232 loopback into the socket.

## *Checks and Adjustments*

### ☑ Aftertouch

To adjust the keyboard aftertouch locate the VR1 trimmer on CPU board, connect the scope CH1 probe tip to its center terminal, probe clip connected at ground, adjust VR1 to obtain an excursion from 0 to 5V every time a note key is pressed with different pressure, or to obtain a better adjustment follow the instructions on ADJUSTMENT TABLE (page 10 or 12).

### ☑ MIDI, RS232 and RS422 mode

Press GENERAL and go to page 3 using the page scroll keys, select MODE(F8) and set PC1 with cursor keys, press ENTER to confirm; press MIDI, select COMMON/ARRG.(F5) and set Common Ch. to 1 using the DIAL, press (F7) to set LOCAL OFF, verify that the keyboard plays thru RS232 by unplugging and re-inserting the RS232 loopback into the socket.
Press GENERAL and select MODE(F8), select MACINTOSH using the cursor keys, press ENTER, check the 1MHz clock appear on pin 1 of COMPUTER socket (use the second probe tip to do that).
Go to page 4 and press SET DATE(F1) button, set the day, month and year using the DIAL or numeric keypad, press ENTER; also set the time pressing SET TIME(F2), finally return to the first page of GENERAL settings.

### ☑ Panel Key and Led

Press GENERAL, SYSTEM INFO (F2) and (F8) the display show a warning message: press ENTER to continue, select PANEL TEST(A) and then press all the panel buttons checking their operation on display, at the same time every led of pressed button must light up, except DISK led.

### ☑ Trackball (Pitch and Modulation)

Rotate the Trackball in vertical way (Modulation) verifying the excursion displayed, it ranges from 0 to 127.
Rotate the Trackball in horizontal way (Pitch) verifying the excursion displayed, it ranges from 0 to 127 with 64 on center position.
A slightly difference may be adjusted by VR11(Pitch) or VR12(Mod.) on Controls panel board, major differences may be adjusted repositioning the knob or the potentiometer.
Press ENTER and ESCAPE simultaneously to return to HARDWARE test menu.

### ☑ Memories and Optional Accessories

Press ALL PART (F1), the instrument self-test check subsequently the follow devices: SIMM modules (F2 Volatile DRAM), 8Mbyte sample dram (F3 Backed DRAM), Internal Hard Disk (F4 HardDisk), 3.5" disk drive (F5 Floppy Disk), Video interface (F6 Video) and SCSI interface (F7 SCSI Test) and marking with "Pass" all devices checked successfully, with "Not Present" all devices not attached, with "Fault" all device defective. Theoretically all test must be passed, if you have a mistake on a device re-check its installation.
Press ENTER if necessary.

### ☑ Inputs, Dsp and Vocal Processor

Put MASTER - INPUT - LEVEL sliders to maximum position and rotate full clockwise GAIN1 and GAIN2 potentiometer located on the rear side.
Turn on the 1KHz test tone pressing HARDWARE SET(C), measure a sinusoidal signal at 4Vpp on OUT 1 and OUT 2 outputs sockets (the 1KHz tone gets out OUT R and L, re-input thru MIC 1 and 2 by the appropriate cable, pass thru DSPs and finally get out from OUT 1 and 2).
Turn off the signal by means HARDWARE SET(C).

### ☑ Noise level

Turn off the instrument, disconnect the signal cable, wait at least 30 seconds, turn on again the keyboard and check the noise level is acceptable (if not verify the insulation between electrical and chassis ground is at least 40Kohms).

### ☑ Data Hold

Press GENERAL, SYSTEM INFO(F2), (F8), ENTER and DATA HOLD (F8) and then wait until the display show PASS.
Turn off the keyboard and then remove not included optional kits (the SK base version is equipped with 2Mbyte SAMPLE DRAM only), restore the jumpers positions: J1 to A, J2 to 2MB, JP1 & 2 to B. Turn on again the instrument and verify, repeating the test, that only Backed DRAM pass, press ESCAPE.

### ☑ Final

Verify the keyboard correct operation playing something on it, finally launch the Demo sequence pressing DEMO and ENTER. When it is finished you have tested the keyboard.

### ☑ Reliability Check

Before reassembling the instrument and before deliver it to the user, it is a goal verify its reliability:
To do that switch it off, or leaving it switched on but operating with greatest caution, carefully shake the boards and connections inside it using an insulated tool (for example the handle of the screwdriver) to find wrong contacts and so on.
Turn on the instrument and verify that it operates correctly repeating the Final Check.
Disconnect the instrument from the mains, reassemble it and shake it carefully without causing aesthetics damages, reconnect it to the mains, turn on and re-check its functionality, finally leave it switched on for a long time verifing its functionality occasionnally.

## Spare Part List

**Legend**

EU = Specify European Version (230Vac)
US = Specify United States Version (115Vac)
SK760 = Mounted on SK760 only
SK880 = Mounted on SK880 only
TRF = Transformer Supply Version only
SWT= Switching Supply Version only

| Ref | Code | | Description |
|---|---|---|---|

### Accessories

| | | |
|---|---|---|
| | 271251 | Owner's Manual (Spanish Language) |
| | 271250 | Owner's Manual (Dutch Language) |
| | 271248 | Owner's Manual (French Language) |
| | 271249 | Owner's Manual (German Language) |
| | 271218 | Owner's Manual (Italian Language) |
| | 271219 | Owner's Manual (English Language) |
| | 955908 | Operating System Disk (SK760) |
| | 955909 | Operating System Disk (SK880) |
| | 955905 | Demo Disk |
| | 956005 | RASS Demo Disk |
| | 300617 | Owner's Manual Folder |
| | 130274 | Mains Cable (EU) |
| | 130276 | Mains Cable (US) |

### Optional Accessories

| | | |
|---|---|---|
| | 970125 | Carring Bag (SK760) |
| | 970110 | X-Metal Stand (SK760) |
| | 970300 | Amplified Stand 230Vac (EU) (SK880) |
| | 970311 | Amplified Stand 115Vac (US) (SK880) |
| | 970116 | Single Foot Switch |
| | 970080 | Triple Foot Switch |
| | 970134 | Piano Single Foot Switch |
| | 970107 | Volume Pedal |
| | 970084 | Dynamic Pedalboard |
| | 130301 | 2mt Midi Cable |
| | 130429 | 3mt RS232 Cable (MiniDin 8 To D-Sub 9) |
| | **970207** | **Hard Disk Installation Kit (NO HD)** |
| | 840824 * | 44 Wires 7.5cm Length Flat Cable |
| | 761094 * | 16Mbit Dram Module |
| | 140923 ** | 32 Contacts Vert Female Connector |
| | 104009 ** | HM5118160ALJ 16Mbit Dram Ta=70nS |
| | 271062 * | Hard Disk Installation Instructions |
| 93 | 171250 * | Hard Disk Support |
| **91** | **970347** | **Hard Disk Kit with World Contents** |
| | 561004 * | Hard Disk with World Contents |
| | 271234 * | Hard Disk Contents Sheet |
| **91** | **970332** | **Hard Disk Kit with Italian Contents** |
| | 561003 * | Hard Disk with Italian Contents |
| | 110404 ** | 2GByte Hard Disk (type depend by availability) |
| | 271233 * | Hard Disk Contents Sheet |
| | **970363** | **Oriental Kit** |
| | 955921 * | Oriental "Styles and Demo" Disk |
| | 955920 * | Oriental "Sound 2" Disk |
| | 955919 * | Oriental "Sound 1" Disk |
| | 271257 * | Owner's Manual Oriental Kit |
| | **970225** | **Volatile SIMM Dram Modules (4MB x2)** |
| | 271065 * | Dram Installation Instructions |
| | 100742 * | Single 4MByte SIMM Module |
| | **970213** | **2Mbyte Backed Samples Dram** |
| | **970331** | **8Mbyte Backed Samples Dram** |
| **78** | **970330** | **SCSI Interface Kit** |
| **89** | **970245** | **NTSC Audio/Video Interface Kit (US)** |
| **89** | **970241** | **PAL Audio/Video Interface Kit (EU)** |
| **89** | **970343** | **NTSC A/V & Vocal Processor (US)** |
| **89** | **970342** | **PAL A/V & Vocal Processor (EU)** |
| | 841004 * | 34 Wires 7.5cm Length Flat Cable |
| | 841049 * | 10 Wires 40cm Length Flat Cable |
| | 841019 * | 10 Wires 65cm Length Flat Cable |
| | 840823 * | 10 Wires 10cm Length Flat Cable |
| | 840009 * | 16 Wires 7.5cm Length Flat Cable |
| | 840204 * | 9 Wires 15cm Length Flat Cable |
| | 841025 * | 2 Wires 10cm Length Screened Cable |
| | 761093 * | Buffer Module Board (Pcb# 315023) |
| | 103013 ** | 74HC138D SOIC 1 Of 8 Decoder |
| | 103003 ** | 74HC374DW SOIC Octal D-Type Flip-Flop |
| | 760994 * | Audio/Video Interf. Board (Pcb# 315092) (NTSC Version) |
| | 760993 * | Audio/Video Interf. Board (Pcb# 315092) (PAL Version) |
| | 761143 * | Audio/Video Pal & Harmonizer Board (Pcb# 315109) |
| | 761152 * | Audio/Video Ntsc & Harmonizer Board (Pcb# 315109) |
| | 231000 ** | BLM21A102STP Smd EMI Coil For Signal |
| | 230582 ** | LC Delay Line 400ns 0.5MHz |
| | 230569 ** | FL5R200PNT EMI Coil For Signal |
| | 230561 ** | 47uH 10% 100mA RF-Coil |
| | 230560 ** | 22uH 10% 170mA RF-Coil |
| | 141016 ** | 16 Contacts Vert Female Connector |
| | 141013 ** | 10 Contacts Vert Female Connector |
| | 140866 ** | 34 Contacts Vert Male Connector |
| | 140324 ** | 9 Contacts Vert Male Connector |
| | 106003 ** | MAX709 Power Monitor With Reset |
| | 106000 ** | TDA8501 PAL/NTSC Encoder |
| | 105010 ** | ADSP2181 Dsp Microcomputer |
| | 105005 ** | FPGA - Video/Lcd Controller |
| | 104003 ** | HM514260JP SOJ Dynamic Ram 4Mbit Ta=70ns |
| | 103031 ** | 74HC00D SOIC Quad Nand Gate |
| | 103030 ** | 74HC32D SOIC Or Nand Gate |
| | 103012 ** | 74HC125D SOIC Quad Tri-State Buffer |
| | 103011 ** | AD1877 SOIC Dual Channel 1bit ADC |
| | 103010 ** | 74HC04D SOIC Hex Inverter |
| | 103007 ** | 74HC74D SOIC Dual Flip-Flop |
| | 101500 ** | 74AC138D SOIC 1 Of 8 Decoder |
| | 100739 ** | ADV476 Color Palette Ram Dac |
| | 100059 ** | 7805 +5V 1A Voltage Regulator |
| | 100045 ** | 7812 +12V 1A Voltage Regulator |
| | 100043 ** | 7912 -12V 1A Voltage Regulator |
| | 100019 ** | TL071 LN J-Fet Operational Amplifier |
| | 091001 ** | BC857 TO236 Smd Pnp Transistor |
| | 091000 ** | BC847 TO236 Smd Npn Transistor |
| | 090153 ** | BC327 TO92 Pnp Transistor |
| | 090102 ** | 2N918 VHF Npn Transistor |
| | 081000 ** | PMLL4148 Smd 100mA 75V Signal Diode |
| | 080500 ** | BB204G Dual Varicap Diode |
| | 010717 ** | 30.20979MHz Quartz Resonator (NTSC Version) |
| | 010716 ** | 7.15909MHz Quartz Resonator (NTSC Version) |
| | 010715 ** | 8.867238MHz Quartz Resonator (PAL Version) |
| | 010714 ** | 30MHz Quartz Resonator (PAL Version) |
| | 010602 ** | 5p2-30pF N750 Ceramic Capacitor Trimmer |
| | 761093 * | Buffer Module Board (Pcb# 315023) |
| | 103013 ** | 74HC138D SOIC 1 Of 8 Decoder |
| | 103003 ** | 74HC374DW SOIC Octal D-Type Flip-Flop |
| | 271200 * | Vocal Processor Owner's Manual Addendum |
| | 130428 * | 3mt Video Cable (Din/Rgb To Rca) (NTSC Version) |
| | 130317 * | 3mt Video Cable (Din/Rgb To Scart) (PAL Version) |
| | 120003 * | M3x8mm Screw |

### Cabinet Assembly

**Bottom Assembly**

| | | |
|---|---|---|
| | 731009 | Gnd-Shield Board (Pcb#315164) |
| | 660461 | Bottom Chassis (SK760)(TRF) |
| | 660615 | Bottom Chassis (SK760)(SWT) |
| | 660462 | Bottom Chassis (SK880)(TRF) |
| | 660613 | Bottom Chassis (SK880)(SWT) |
| 18 | 652729 | Left Side (SK760) |
| 1 | 652728 | Right Side (SK760) |
| 56 | 261178 | Left Side (SK880) |
| 53 | 261177 | Right Side (SK880) |
| | 171400 | Side to Panel Hooking (SK880) |
| | 340357 | Spacer For Left & Right Side |
| | 340330 | Washer 10/4x7mm |
| | 340115 | Adhesive Flat Cable Fixing |
| | 340093 | Board Spacer |
| | 190230 | Lateroid Insulator |
| | 171455 | Accessories Support |
| | 171406 | Phones Board Support |
| | 340435 | Adhesive Foot |
| | 110020 | T5A Fuse 5x20mm (EU) |
| | 110021 | T5A Fuse 6.3x32mm (US) |
| | 110010 | T2A Fuse 5x20mm (SWT) |
| | 110011 | T1A Fuse 5x20mm (EU) |
| | 110083 | T2A Fuse 6.3x32mm (US) |
| | 110009 | T630mA Fuse 5x20mm (EU) |
| | 110085 | T630mA Fuse 6.3x32mm (US) |

**Top Assembly**

| | | |
|---|---|---|
| 2 | 660453 | SCSI Slot Closer |
| 4 | 660446 | Controls Panel (GEM)(SK760)(TRF) |
| 4 | 660617 | Controls Panel (GEM)(SK760)(SWT) |
| 4 | 660450 | Controls Panel (GM)(SK760)(TRF) |
| 4 | 660620 | Controls Panel (GM)(SK760)(SWT) |
| 54 | 660448 | Controls Panel (GEM)(SK880) (with oval wheels) |
| 54 | 660452 | Controls Panel (GM)(SK880) (with oval wheels) |
| 54 | 660693 | Controls Panel (GEM)(SK880) (with normal wheels) |
| 54 | 660694 | Controls Panel (GM)(SK880) (with normal wheels) |
| 5 | 660445 | Rear Panel (GEM)(SK760)(TRF) |
| 5 | 660616 | Rear Panel (GEM)(SK760)(SWT) |
| 5 | 660449 | Rear Panel (GM)(SK760)(TRF) |
| 5 | 660619 | Rear Panel (GM)(SK760)(SWT) |
| 55 | 660447 | Rear Panel (GEM)(SK880)(TRF) |
| 55 | 660614 | Rear Panel (GEM)(SK880)(SWT) |
| 55 | 660451 | Rear Panel (GM)(SK880)(TRF) |
| 55 | 660618 | Rear Panel (GM)(SK880)(SWT) |
| 23 | 652747 | <Style Groups> Actuators Rubber Strip |
| 35 | 652746 | <Sound Groups> Actuators Rubber Strip |
| 28 | 652745 | Potentiometers Display Rubber Strip |
| 30 | 652743 | <Enter ... Cursor Down> Actuators Rubber Strip |
| 25 | 652742 | <Intro ... Start/Stop> Actuators Rubber Strip |
| 33 | 652740 | <Record ... Play>> Actuators Rubber Strip |
| 24 | 652739 | <Fade I/O ... Fill >> Actuators Rubber Strip |
| 35 | 652738 | <Pad 1 ... Tranposer #> Actuators Rubber Strip |
| 32 | 652751 | <Contrast ... Key Pad> Actuator Rubber Strip |
| 22 | 652736 | <Arrange ... Store Perf> Actuators Rubber Strip |
| 41 | 652725 | Left Top Plastic Chassis (SK760)(with oval wheels) |
| 41 | 653489 | Left Top Plastic Chassis (SK760)(with normal wheels) |
| 57 | 652727 | Left Top Plastic Chassis (SK880) |
| 40 | 652724 | Right Top Plastic Chassis |
| 37 | 652723 | Display Controls Panel |
| 29 | 652717 | <Performance Groups> Actuators Rubber Strip |
| 34 | 652715 | <Edit/Number> Actuators Rubber Strip |
| 39 | 651560 | Display Plastic Glass |
| | 340586 | Insulant Spacer |
| 26 | 340574 | Left Display Rubber Keypad |
| 27 | 340573 | Right Display Rubber Keypad |
| | 340556 | Polycarbonate Washer for Dial |
| | 340547 | 6.5mm Spacer |
| | 340544 | Spacer For Display Metal Support |
| | 340543 | Spacer For Display Controls Panel |
| | 340542 | Controls Lower Spacer |
| | 340541 | Controls Centre Spacer |
| | 340540 | Controls Upper Spacer |
| | 340538 | Trasparent Support For Controls Panel |
| 59 | 340522 | Disk Drive Frame (SK880) |
| | 340521 | Dial Support |
| 20 | 340512 | Slider Potentiometer Guide |
| | 340510 | Led Lens |
| 21 | 340494 | Slider Potentiometer Knob |
| 31 | 340493 | Dial Knob |
| 11 | 340370 | Mic/Line Knob |
| | 340186 | Adhesive Cable Fixing |
| | 340092 | 5mm Board Spacer |
| | 230584 | EMI Ferrite For Flat Cable |
| | 210251 | Potentiometers Gasket |
| | 171583 | 3 Din Sockets Reinforcement |
| | 171472 | Controls & Midi I/O Board Support |
| 80 | 171451 | 4 Jack Sockets Reinforcement |
| 84 | 171450 | 6 Jack Sockets Reinforcement |
| 105 | 171430 | Top-Bottom Chassis Reinforcement (SK880) |
| 106 | 171429 | Controls Panel Front Reinforcement(SK880) |
| 81 | 171424 | 4 Din Sockets Reinforcement |
| 108 | 171420 | Right Disk Drive Support (SK880) |
| 109 | 171419 | Left Disk Drive Support (SK880) |
| | 171417 | Pitch & Mod. Ass'y Reinforcement (SK880) |
| | 171397 | Spacer For R-Top Plastic Chassis |
| | 171396 | Spacer For L-Top Plastic Chassis |
| | 171395 | Analog I/O Board Support |
| 72 | 171392 | Top-Bottom Chassis Reinforcement (SK760) |
| 73 | 171384 | Display Metal Support |
| | 171383 | Control Panel Metal Plate |
| 98 | 171004 | Right Disk Drive Support (SK760) |
| 99 | 171003 | Left Disk Drive Support (SK760) |
| | 150032 | 10mm Spacer |
| | 140528 | Right Contact Mylar Strip (display) |
| 83 | 140527 | Left Contact Mylar Strip (display) |
| | 130061 | 7 Wires 0.20 Length Flat Cable |
| | 120960 | Dial Steel Sphere |
| | 120808 | 12mm Spacer |
| 97 | 110400 | 3.5" Disk Drive |
| 77 | 110254 | Rotary Encoder With Snap |
| 38 | 080755 | Lcd Display 320X240 dots SP14Q001 Hitachi |

### Mains Assembly

| | | | |
|---|---|---|---|
| **7** | **730681** | | **Mains Switch Assembly** |
| 9 | 340359 | * | Power Switch Frame |
| | 171008 | * | Mains Socket & Power Switch Support |
| 8 | 110614 | * | Mains Socket |
| 10 | 110285 | * | Power Switch |

### Mains Filter

| | | | |
|---|---|---|---|
| **86** | **767988** | | **Mains Filter Board (Pcb#315014)(TRF)** |
| | 230568 | * | 10mH 250Vac 1A AC Line EMI Coil "Siemens" |
| | 140010 | * | 3 Contacts P=10 Vert Terminal Block |
| | 110119 | * | Fuse Clip 10A max |
| | 020493 | * | 100n 250Vac MKP EMI Capacitor "Siemens" |
| | 010545 | * | 4n7 250V Ceramic Capacitor (Iec-Ul-Csa) |
| **103** | **230532** | | **30mh Imax=1a Mains Filter Coil (SWT)** |

### Tranformers

| | | |
|---|---|---|
| **87** | **230127** | **Transformer 230Vac 120W (EU)(TRF)** |
| **87** | **230129** | **Transformer 115Vac 120W (US)(TRF)** |

### Switching Supply Unit

| | | |
|---|---|---|
| **101** | **731011** | **SNP9541M 40W Switching Supply Unit (SWT)** |

### Power Amplifier & Supply Board (TRF)

| | | | |
|---|---|---|---|
| **88** | **730668** | | **Power Amplifier & Supply Board (Pcb#315116)(TRF)** |
| | 230524 | * | 100uH Switching Coil |
| | 141015 | * | 14 Contacts Vert Female Connector |
| | 141010 | * | 4 Contacts Vert Female Connector |
| | 140874 | * | Single In Line Vert Male Strip (specify contacts) |
| | 140873 | * | 4 Contacts Vert Male Connector |
| | 140325 | * | 12 Contacts Vert Male Connector |
| | 140324 | * | 9 Contacts Vert Male Connector |
| | 140323 | * | 6 Contacts Vert Male Connector |
| | 140010 | * | 3 Contacts P=10 Vert Terminal Block |
| | 110305 | * | Relay 12V / 2 Switch 1A 250V |
| | 110119 | * | Fuse Clip 10A max (EU) (US) |
| | 100955 | * | LM2576 5V 3A Switching Regulator |
| | 100931 | * | MC34081 Single J-Fet Operational Amplifier |
| | 100906 | * | CEM3381 Dual V.C.A. |
| | 100061 | * | TL072 Dual J-Fet Operational Amplifier |
| | 100045 | * | 7812 +12V 1A Voltage Regulator |
| | 100043 | * | 7912 -12V 1A Voltage Regulator |
| | 090183 | * | BC550 TO92 LN Npn Transistor |
| | 090153 | * | BC327 TO92 Pnp Transistor |
| | 090152 | * | BC337 TO92 Npn Transistor |
| | 080606 | * | GBU8D 8A Rectifier Diodes Bridge |
| | 080171 | * | FE6B 6A 100V Fast Recovery Diode |
| | 080168 | * | W02M 1.5A Rectifier Diodes Bridge |
| | 080103 | * | 1N4148 100mA 75V Signal Diode |
| | 070181 | * | 10K 20% Horizontal Linear Trimmer |
| | 030950 | * | 470u 16V 20% Low Esr Vert Electrolytic Capacitor |
| | 030554 | * | 4700u 35v 20% Snap-In Electrolytic Capacitor |
| | 030525 | * | 2200u 63V 20% Snap-In Electrolytic Capacitor |

### Mixer Board (SWT)

| | | | |
|---|---|---|---|
| **102** | **761183** | | **Mixer Board (Pcb#315151)(SWT)** |
| | 141102 | * | 6 Contacts Vert Male Connector |
| | 141015 | * | 14 Contacts Vert Female Connector |
| | 141010 | * | 4 Contacts Vert Female Connector |
| | 140877 | * | Jumper For Contacts Strip (p=2.54mm) |
| | 140874 | * | Single In Line Vert Male Strip (specify contacts) |
| | 140873 | * | 4 Contacts Vert Male Connector |
| | 140325 | * | 12 Contacts Vert Male Connector |
| | 140324 | * | 9 Contacts Vert Male Connector |
| | 140323 | * | 6 Contacts Vert Male Connector |
| | 110305 | * | Relay 12V / 2 Switch 1A 250V |
| | 100906 | * | CEM3381 Dual V.C.A. |
| | 100061 | * | TL072 Dual J-Fet Operational Amplifier |
| | 090183 | * | BC550 TO92 LN Npn Transistor |
| | 090153 | * | BC327 TO92 Pnp Transistor |
| | 090152 | * | BC337 TO92 Npn Transistor |
| | 080103 | * | 1N4148 100mA 75V Signal Diode |
| | 070332 | * | 470K 20% Horizontal Linear Trimmer |
| | 030954 | * | 100u 35V 20% Low Esr Vert Electrolytic Capacitor |
| | 030247 | * | 10u 25V 20% Vert Electrolytic Bipolar Capacitor |
| | 102015 | * | Hybrid +5Vdc/-24Vdc 20mA Converter |

### Phones Board

| | | | |
|---|---|---|---|
| **96** | **730678** | | **Phones Board (Pcb#315118) (SK760)** |
| **112** | **730686** | | **Phones Board (Pcb#315123) (SK880)** |
| | 230569 | * | FL5R200PNT EMI Coil For Signal |
| | 140361 | * | 6 Contacts Vert Male Pass-Thru Connector o questo |
| | 140327 | * | 6 Contacts Hor Male Connector o quelo |
| | 140217 | * | Jack Stereo Slim Horizontal Socket |

### 76 Notes Keyboard Assembly

| | | | |
|---|---|---|---|
| | **720493** | | **76N Keyboard Assembly with Interface (SK760)** |
| | 841064 | * | 2 Wires 17cm Length Crimp Terminal Cable |
| | 840838 | * | 20 Wires 15cm Length Flat Cable |
| | 840808 | * | 16 Wires 30cm Length Flat Cable |
| **94** | **761137** | * | **Keyboard Interface Board (Pcb#315024) (SK760)** |
| | 230569 | ** | FL5R200PNT EMI Coil For Signal |
| | 141018 | ** | 20 Contacts Vert Female Connector |
| | 141016 | ** | 16 Contacts Vert Female Connector |
| | 141011 | ** | 6 Contacts Vert Female Connector |
| | 140918 | ** | 2 Contacts Hor Male Connector |
| | 140872 | ** | 4 Contatcs Hor Male Connector |
| | 100740 | ** | HD6433278 Cpu F=20MHz |
| | 100605 | ** | 74HC125 Quad 3-State Buffer |
| | 090194 | ** | BC560 TO92 LN Pnp Transistor |

| | | | |
|---|---|---|---|
| | 050493 | ** | 10Kx4 1/8w 5% Resistor Array |
| | 050492 | ** | 10Kx8 1/8w 5% Resistor Array |
| | 050414 | ** | 2K2x4 1/8w 5% Resistor Array |
| | 010725 | ** | 20MHz Ceramic Resonator With Capacitors |
| | 010662 | ** | 220p 10% 50V X8 Cap Array |
| | 010661 | ** | 47p 10% 50V X8 Cap Array |
| **95** | **730680** | * | **Connection Board (Pcb#315114) (SK760)** |
| | 140918 | ** | 2 Contacts Hor Male Connector |
| | 140890 | ** | 4 Contacts Hor Male Single-Strip |
| | **720494** | * | **76N Keyboard Assembly (TP9 w/AT) (SK760)** |
| | **810557** | ** | **44N Right Contacts Board (Pcb#310566)** |
| | 340211 | *** | 12 Dual Contact Rubber Strip |
| | 141018 | *** | 20 Contacts Vert Female Connector |
| | 080103 | *** | 1N4148 100mA 75V Signal Diode |
| | **810556** | ** | **32N Left Contacts Board (Pcb#310565)** |
| | 340211 | *** | 12 Dual Contact Rubber Strip |
| | 141016 | *** | 16 Contacts Vert Female Connector |
| | 080103 | *** | 1N4148 100mA 75V Signal Diode |
| | 500072 | ** | Mechanical Keyboard Assembly (TP9 w/AT) |
| | 160200 | *** | Key Return Spring (TP9 20g) |
| 51 | 151191 | *** | Last G Key (TP9 20g) |
| 43 | 151190 | *** | First E Key (TP9 20g) |
| 47 | 151189 | *** | B Key (TP9 20g) |
| 46 | 151188 | *** | A Key (TP9 20g) |
| 45 | 151187 | *** | G Key (TP9 20g) |
| 44 | 151186 | *** | F Key (TP9 20g) |
| 50 | 151185 | *** | E Key (TP9 20g) |
| 49 | 151184 | *** | D Key (TP9 20g) |
| 48 | 151183 | *** | C Key (TP9 20g) |
| 52 | 151001 | *** | Sharp Key (TP9 10g) |
| | 340115 | * | Adhesive Flat Cable Fixing |
| | 340092 | * | 5mm Board Spacer |

## 88 Notes Keyboard Assembly

| | | | |
|---|---|---|---|
| | **720503** | | **88N Keyboard Assembly with Interface (SK880)** |
| | 841071 | * | 20 Wires 30cm Length Flat Cable |
| | 840838 | * | 20 Wires 15cm Length Flat Cable |
| | 840767 | * | 2 Wires 30cm Length Crimp Terminal Cable |
| **111** | **761142** | * | **Keyboard Interface Board (Pcb#315024) (SK880)** |
| | 230569 | ** | FL5R200PNT EMI Coil For Signal |
| | 141018 | ** | 20 Contacts Vert Female Connector |
| | 141011 | ** | 6 Contacts Vert Female Connector |
| | 140918 | ** | 2 Contacts Hor Male Connector |
| | 140872 | ** | 4 Contatcs Hor Male Connector |
| | 100740 | ** | HD6433278 Cpu F=20MHz |
| | 100605 | ** | 74HC125 Quad 3-State Buffer |
| | 090194 | ** | BC560 TO92 LN Pnp Transistor |
| | 050493 | ** | 10Kx4 1/8w 5% Resistor Array |
| | 050492 | ** | 10Kx8 1/8w 5% Resistor Array |
| | 050414 | ** | 2K2x4 1/8w 5% Resistor Array |
| | 010725 | ** | 20MHz Ceramic Resonator With Capacitors |
| | 010662 | ** | 220p 10% 50V X8 Cap Array |
| | 010661 | ** | 47p 10% 50V X8 Cap Array |
| **110** | **730687** | * | **Connection Board (Pcb#315119)(SK880)** |
| | 140918 | ** | 2 Contacts Hor Male Connector |
| | 140890 | ** | 4 Contacts Hor Male Single-Strip |
| | **720502** | * | **88N Keyboard Assembly (TP10 w/AT) (SK88)** |
| | **810552** | ** | **39N Left Contacts Board (Pcb#310531)** |
| | 340764 | *** | 3 Dual Contacts Rubber Strip |
| | 340211 | *** | 12 Dual Contact Rubber Strip |
| | 141018 | *** | 20 Contacts Vert Female Connector |
| | 141010 | *** | 4 Contacts Vert Female Connector |
| | 080103 | *** | 1N4148 100mA 75V Signal Diode |
| | **810551** | ** | **49N Right Contacts Board (Pcb#310530)** |
| | 340212 | *** | 13 Dual Contact Rubber Strip |
| | 340211 | *** | 12 Dual Contact Rubber Strip |
| | 141018 | *** | 20 Contacts Vert Female Connector |
| | 141010 | *** | 4 Contacts Vert Female Connector |
| | 080103 | *** | 1N4148 100mA 75V Signal Diode |
| | 500071 | ** | Mechanical Keyboard Assembly (TP10) |
| | 160214 | *** | Sharp Key Return Spring (TP10MDF/s) |
| | 160213 | *** | Natural Key Return Spring (TP10MDF/s) |
| 68 | 151201 | *** | Last C Key (TP10MDF/s) |
| 60 | 151200 | *** | First A Key (TP10MDF/s) |
| 69 | 151199 | *** | Sharp Key (TP10MDF/s) |
| 67 | 151198 | *** | B Key (TP10MDF/s) |
| 66 | 151197 | *** | A Key (TP10MDF/s) |
| 65 | 151196 | *** | G Key (TP10MDF/s) |
| 64 | 151195 | *** | F Key (TP10MDF/s) |
| 63 | 151194 | *** | E Key (TP10MDF/s) |
| 62 | 151193 | *** | D Key (TP10MDF/s) |
| 61 | 151192 | *** | C Key (TP10MDF/s) |
| | 340115 | * | Adhesive Flat Cable Fixing |
| | 340092 | * | 5mm Board Spacer |

## Controls Interface Board

| | | | |
|---|---|---|---|
| **75** | **761135** | | **Controls Interface Board (Pcb#315113)** |
| | 141018 | * | 20 Contacts Vert Female Connector |
| | 141016 | * | 16 Contacts Vert Female Connector |
| | 140872 | * | 4 Contatcs Hor Male Connector |
| | 140857 | * | 16 Contacts Hor Male Connector |
| | 140854 | * | 16 Contacts Vert Male Connector |
| | 140329 | * | 12 Contacts Hor Male Connector |
| | 140325 | * | 12 Contacts Vert Male Connector |
| | 100740 | * | HD6433278 Cpu F=20MHz |
| | 100645 | * | 74HC4351 8ch Analog Multiplexer |
| | 100605 | * | 74HC125 Quad 3-State Buffer |
| | 090183 | * | BC550 TO92 LN Npn Transistor |
| | 090153 | * | BC327 TO92 Pnp Transistor |
| | 080103 | * | 1N4148 100mA 75V Signal Diode |
| | 050493 | * | 10Kx4 1/8w 5% Resistor Array |
| | 050492 | * | 10Kx8 1/8w 5% Resistor Array |
| | 050414 | * | 2K2x4 1/8w 5% Resistor Array |
| | 030246 | * | 10u 25V 20% Low Prof Vert Electrolytic Capacitor |
| | 010725 | * | 20MHz Ceramic Resonator With Capacitors |
| | 010662 | * | 220p 10% 50V X8 Cap Array |
| | 010661 | * | 47p 10% 50V X8 Cap Array |

## Controls Panel Board

| | | | |
|---|---|---|---|
| **76** | **810309** | | **Controls Panel Board (Pcb#315112)(TRF)** |
| **113** | **810674** | | **Controls Panel Board (Pcb#315169)(SWT)** |
| | 171310 | * | Copper Screen For Leds |
| | 141018 | * | 20 Contacts Vert Female Connector |
| | 141016 | * | 16 Contacts Vert Female Connector |
| | 140914 | * | 7 Contacts Hor Female Zif Mylar Connector |
| | 140529 | * | Microswitch 12V 50mA 0.25mm |
| | 140362 | * | 9 Contacts Hor Male Pass-Thru Connector |
| | 140328 | * | 9 Contacts Hor Male Connector |
| | 110254 | * | Rotary Encoder With Snap |
| | 100620 | * | 74HC86 Quad 2-Input Exor Gate |
| | 100614 | * | 74HC74 Dual Flip-Flop |
| | 100607 | * | 74HC164 8bit S To P Shift Register |
| | 100061 | * | TL072 Dual J-Fet Operational Amplifier |
| | 090183 | * | BC550 TO92 LN Npn Transistor |
| | 080743 | * | 3mm Wide Diffused Green Led |
| | 080711 | * | 3mm High Efficiency Red Led |
| | 080103 | * | 1N4148 100mA 75V Signal Diode |
| | 070702 | * | 5K Linear Rotary Potentiometer |
| | 070551 | * | 10K Linear 30mm Slider Potentiometer |
| | 070201 | * | 22K 20% Horizontal Linear Trimmer |
| | 030246 | * | 10u 25V 20% Low Prof Vert Electrolytic Capacitor |
| | 010662 | * | 220p 10% 50V X8 Cap Array |

## Pitch Bender & Modulation Assembly (oval wheels)

| | | | |
|---|---|---|---|
| **71** | **720499** | | **Pitch Bender & Modulation Assembly (SK760)** |
| **107** | **720504** | | **Pitch Bender & Modulation Assembly (SK880)** |
| | 840726 | * | 9 Wires 40cm Length Flat Cable |
| 42 | 340361 | * | Wheel Knob |
| | 340331 | * | Sheath For Spring |
| | 210078 | * | 2x10mm Adhesive Black Felt (Specify mt) |
| | 171422 | * | Ferrule |
| | 171411 | * | Pitch B. & Mod. Knobs Support |
| | 160166 | * | Return Spring |
| | 120554 | * | Lock Washer |
| 70 | 070701 | * | 10K Lin. Potentiometer With Click |

## Pitch Bender & Modulation Assembly (new wheels)

| | | | |
|---|---|---|---|
| **71** | **720628** | | **Pitch Bender & Modulation Assembly (SK760)** |
| **107** | **720629** | | **Pitch Bender & Modulation Assembly (SK880)** |
| | 840726 | * | 9 Wires 40cm Length Flat Cable |
| 42 | 340568 | * | Wheel |
| | 340331 | * | Sheath For Spring |
| | 210264 | * | Black Felt |
| | 171460 | * | Wheel Support (SK760) |
| | 171711 | * | Wheels Reinforcment Support (SK880) |
| | 171710 | * | Wheels Support (SK880) |
| | 120276 | * | B2.9x6.5mm Screw |
| | 160166 | * | Return Spring |
| | 120554 | * | Lock Washer |
| 70 | 074700 | * | 4K7 Linear Rotative Potentiometer |

## DC-AC Converter Assembly

| | | | |
|---|---|---|---|
| 74 | 730679 | | DC-AC Converter Assembly |
| | **730246** | * | **DC-AC Converter Board (Pcb# Cs032001)** |
| | 340523 | * | 6.5mm Spacer |
| | 340092 | * | 5mm Board Spacer |
| | 171407 | * | Shield |

## Cpu & Sound Generator Board

| | | | |
|---|---|---|---|
| **92** | **761166** | | **Cpu & Sound Generator Board (Pcb#315150) first TRF version only** |
| **92** | **761181** | | **Cpu & Sound Generator Board (Pcb#315150) TRF and SWT versions** |
| | 231000 | * | BLM21A102STP Smd EMI Coil For Signal |
| | 230527 | * | BL02RN2-R62 EMI Coil For Signal |
| | 141018 | * | 20 Contacts Vert Female Connector |
| | 141016 | * | 16 Contacts Vert Female Connector |
| | 141011 | * | 6 Contacts Vert Female Connector |
| | 141010 | * | 4 Contacts Vert Female Connector |
| | 140922 | * | 32 Contacts Vert Male Strip P=2mm |
| | 140917 | * | 2 Contacts Vert Male Connector |
| | 140915 | * | 44 Contacts Vert Male Strip P=2mm |
| | 140913 | * | Simm Socket 30 Pin |
| | 140881 | * | 14 Contacts Vert Female Con. For Mylar Cable |
| | 140877 | * | Jumper For Contacts Strip (p=2.54mm) |
| | 140874 | * | Single In Line Vert Male Strip (specify contacts) |
| | 140873 | * | 4 Contacts Vert Male Connector |
| | 140866 | * | 34 Contacts Vert Male Connector |
| | 140854 | * | 16 Contacts Vert Male Connector |
| | 140325 | * | 12 Contacts Vert Male Connector |
| | 106003 | * | MAX709 Power Monitor With Reset |
| | 105009 | * | DISP3 QFP Digital Sound Processor (Hitachi) |
| | 105005 | * | FPGA - Video/Lcd Controller |
| | 105004 | * | MC68360EM25 QFP Cpu |
| | 104037 | * | 23C32000G 32Mbit Rom "Styles" |
| | 104036 | * | MX23C6410 64Mbit Rom "Samples2" |
| | 104035 | * | MX23C6410 64Mbit Rom "Samples1" |
| | 104020 | * | KM62256CLG SOP 256Kbit SRam Ta=55nS |
| | 104010 | * | HM514280AJ 4M5bit Dram Ta=70nS |
| | 104009 | * | HM5118160ALJ 16Mbit Dram Ta=70nS |
| | 104007 | * | E28F016SV-70 1Mbit Flash Memory Ta=70nS |
| | 103012 | * | 74HC125D SOIC Quad Tri-State Buffer |
| | 103010 | * | 74HC04D SOIC Hex Inverter |
| | 103004 | * | AD1865R SOP 18bit D/A Converter |
| | 103002 | * | 74HC245DW SOIC Octal Bus Transceiver |
| | 103001 | * | 74HC08D SOIC Quad 2-Input And Gate |
| | 101502 | * | 74AC125D SOIC Quad Tri-State Buffer |
| | 100904 | * | LM393 Dual Comparator |
| | 100733 | * | uPD72064 Floppy Disk Controller (first TRF version only) |
| | 100591 | * | GM82C765B Floppy Disk Controller (TRF and SWT versions) |
| | 100731 | * | DS1202 Clock Calendar |
| | 100059 | * | 7805 +5V 1A Voltage Regulator |
| | 100058 | * | 7905 -5V 1A Voltage Regulator |
| | 091000 | * | BC847 TO236 Smd Npn Transistor |
| | 090153 | * | BC327 TO92 Pnp Transistor |
| | 090152 | * | BC337 TO92 Npn Transistor |
| | 081000 | * | PMLL4148 Smd 100mA 75V Signal Diode |
| | 080156 | * | 1N4002 1A 100V Rectifier Diode |
| | 070160 | * | 2K2 20% Horizontal Linear Trimmer |
| | 010732 | * | 4.194304MHz Quartz Oscillator |
| | 010727 | * | 45.1584MHz Quartz Resonator |
| | 010725 | * | 20MHz Ceramic Resonator With Capacitors |
| | 010718 | * | 32MHz Quartz Resonator (first TRF version only) |
| | 010704 | * | 16MHz Quartz Resonator (TRF and SWT versions) |
| | 010710 | * | 32768Hz Quartz Resonator |
| | **761094** | | **2Mbyte Dram Module** |
| | 140923 | * | 32 Contacts Vert Female Strip P=2mm |
| | 104009 | * | HM5118160ALJ 16Mbit Dram Ta=70nS |

## Controls & Midi I/O Board

| | | | |
|---|---|---|---|
| 3 | 761101 | | Controls & Midi I/O Board with Battery |
| | **751101** | * | **Controls & Midi I/O Board (Pcb# 315088)** |
| | 230569 | ** | FL5R200PNT EMI Coil For Signal |
| | 141018 | ** | 20 Contacts Vert Female Connector |
| 17 | 140247 | ** | 8 Poles Mini Din Female Socket |
| 13 | 140217 | ** | Jack Stereo Slim Horizontal Socket |
| 19 | 140216 | ** | 6 Poles Din Horizontal Female Socket |
| 16 | 140212 | ** | 5 Poles Din Horizontal Female Socket |
| | 100734 | ** | MAX202E RS232 Drivers/Receiver |
| | 100618 | ** | 74HC14 Hex Inverter Schmitt Trigger |
| | 100035 | ** | 6N138 Optocoupler |
| | 090194 | ** | BC560 TO92 LN Pnp Transistor |
| | 090183 | ** | BC550 TO92 LN Npn Transistor |
| | 080103 | ** | 1N4148 100mA 75V Signal Diode |
| 79 | 110300 | * | 4.8V 280mAh Nicd Battery |

## Analog I/O Board

| | | | |
|---|---|---|---|
| **6** | **730669** | | **Analog I/O Board (Pcb#315117)** |
| | 230569 | * | FL5R200PNT EMI Coil For Signal |
| | 141015 | * | 14 Contacts Vert Female Connector |
| | 141013 | * | 10 Contacts Vert Female Connector |
| 15 | 140248 | * | 4 Poles Mini Din Female Socket |
| 14 | 140219 | * | 13 Poles Din Horizontal Female Socket |
| 13 | 140217 | * | Jack Stereo Slim Horizontal Socket |
| 12 | 140207 | * | Jack Horizontal Female Socket |
| | 100919 | * | MC33078 Dual LN Operational Amplifier |
| | 080103 | * | 1N4148 100mA 75V Signal Diode |
| | 075595 | * | 10K 16mm Hor Rotary Alog Potentiometer |
| | 070613 | * | 2X10KC Potentiometer |

## Wiring Connections

| | | | |
|---|---|---|---|
| 85 | 770775 | | Mains Cables Assembly (TRF) |
| | 770773 | | Ground Connections (SK760)(TRF) |
| | 770795 | | Ground Connections (SK880)(TRF) |
| 100 | 770865 | | Mains & Ground Connections (SK760)(SWT) |
| | 770868 | | Mains & Ground Connections (SK880)(SWT) |
| | 841079 | | 16 Wires 12.5cm Length Flat Cable |
| | 841070 | | 34 Wires 80cm Length Flat Cable (SK760) |
| | 840628 | | 34 Wires 35cm Length Flat Cable (SK880) |
| | 841069 | | 14 Wires 20cm Length Flat Cable |
| | 841066 | | 3 (of 4) Wires 12.5cm Length Crimp Terminal Cable |
| | 840828 | | 20 Wires 7.5cm Length Flat Cable |
| | 840806 | | 12 Wires 5cm Length Crimp Terminal Cable |
| | 840801 | | 20 Wires 17.5cm Length Flat Cable |
| | 840761 | | 20 Wires 12.5cm Length Flat Cable |
| | 840757 | | 4 Wires 3cm Length Flat Cable |
| | 840607 | | 3 (of 4) Wires 15cm Length Crimp Terminal Cable |
| | 840556 | | 16 Wires 17.5cm Length Flat Cable |
| | 840257 | | 12 Wires 25cm Length Flat Cable |
| | 840164 | | 6 Wires 60cm Length Flat Cable (SK760) |
| | 840166 | | 6 Wires 70cm Length Flat Cable (SK880) |
| | 841198 | | 6 Wires 7.5cm Length Crimp Terminal Cable (SWT) |
| | 840719 | | 6 Wires 17.5cm Length Flat Cable (SK880) |
| | 840708 | | 3 (of 4) Wires 80cm Length Crimp Terminal Cable (SK880) |
| | 840803 | | 6 Wires 12.5cm Length Flat Cable (SK760)(TRF) |
| | 840707 | | 3 (of 4) Wires 50cm Length Crimp Terminal Cable (SK760)(TRF) |
| | 840579 | | 3 (of 4) Wires 55cm Length Crimp Terminal Cable (SK760)(SWT) |

## IMPORTANT:

Starting from July 1999, caused by Floppy Disk Controller IC (uPD72064) will goes out of production:

*when you replace the entire CPU & SOUND GENERATOR BOARD you must order the new code **761181** instead of old code 761166, or:*

*when you replace only the IC37 on CPU & SOUND GENERATOR BOARD, if uPD72064 is not available as spare part, you must replace it with GM82C765B (code **100591**) and also change the XT4 (16MHz code **010704**) and related discrete components (see schematics).*

Starting from March/April 2000, the Pitch Bender & Modulation Assembly uses new wheels, the spare parts change as mentioned above, the graphical representation at page 3,4,5,6,7,8 shows the old version with oval wheels.

## Note:

Each spare part is single quantity unless otherwise specified.
Asterisk prefix explanation:
Omitted = First level spare part.
One asterisk = Second level, part of previous listed first level part.
Two asterisk = Third level, part of previous listed second level part.
Three asterisk = .....
Any request for not above mentioned part must encompass specific description including:
1) Model name,
2) Section name,
3) Module code,
4) Reference name,
5) Quantity number.